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# Water Quality of Interstate Streams in the Susquehanna River Basin

Monitoring Report No. 10
July 1, 1995–June 30, 1996

*Publication 185* *July 1997*

Susquehanna River Basin Commission
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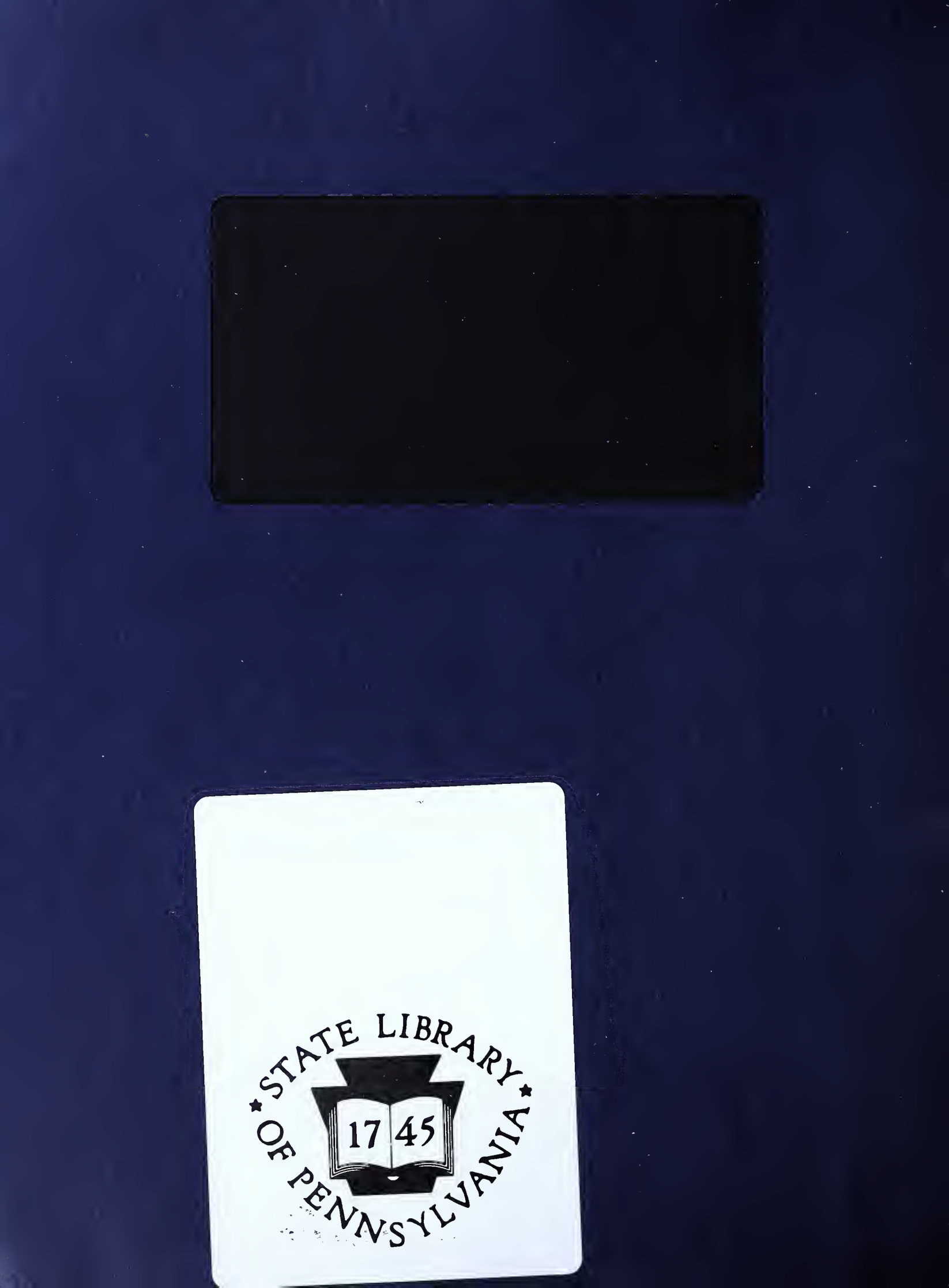
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**Statutory Citations: Federal - Pub. L. 91-575, 84 Stat. 1509 (December 1970); Maryland - Natural Resources Sec. 8-301 (Michie 1974); New York - ECL Sec. 21-1301 (McKinney 1973); and Pennsylvania - 32 P.S. 820.1 (Supp. 1976).*

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# Water Quality of Interstate Streams in the Susquehanna River Basin

Monitoring Report No. 10
July 1, 1995-June 30, 1996

*Scott W. Bollinger*
*Darryl L. Sitlinger*

## INTRODUCTION

The Susquehanna River Basin Commission (SRBC) reviews projects and policies for potential impacts on interstate water resources in the Susquehanna River Basin. Current water quality data are needed to conduct these reviews. Monitoring programs conducted by New York, Pennsylvania, and Maryland do not assess all the interstate streams. Therefore, the SRBC established a monitoring program to collect data needed to assess potential impacts on the water quality of interstate streams. This ongoing program is partially funded through a grant from the U.S. Environmental Protection Agency.

The monitoring program includes periodic collection of water and biological samples from interstate streams. Water quality data are used to assess compliance with state water quality standards, characterize stream quality and seasonal variations, and build a database for the future assessment of water quality trends. Biological conditions are monitored by assessing benthic macroinvertebrate populations. Macroinvertebrate populations provide an indication of the biological health of a stream and serve as indicators of water quality.

Monitoring began in April 1986. Results were originally reported for water years that run from October to September. This report is presented for the SRBC fiscal year that covers the period from July 1, 1995, to June 30, 1996.

## BASIN GEOGRAPHY

The Susquehanna River Basin is the largest river basin on the Atlantic Coast of the United States, draining 27,510 square miles (Figure 1). The Susquehanna River originates at the outlet of Otsego Lake, Cooperstown, N.Y., and flows 444 miles through New York, Pennsylvania, and Maryland to the Chesapeake Bay at Havre de Grace, Maryland. Eighty-three streams cross state lines in the basin (Table 1). Some streams traverse the state lines at several places, contributing to a total of 91 crossings. At 45 of these locations, streams flow from New York into Pennsylvania. Twenty-two reaches cross from Pennsylvania into New York, 15 from Pennsylvania into Maryland, and nine from Maryland into Pennsylvania. Many streams are small; 32 are unnamed.

## METHODS

### Sampling Frequency

In Water Year 1989, the interstate streams were divided into three groups according to the degree of water quality impairment and potential for degradation.

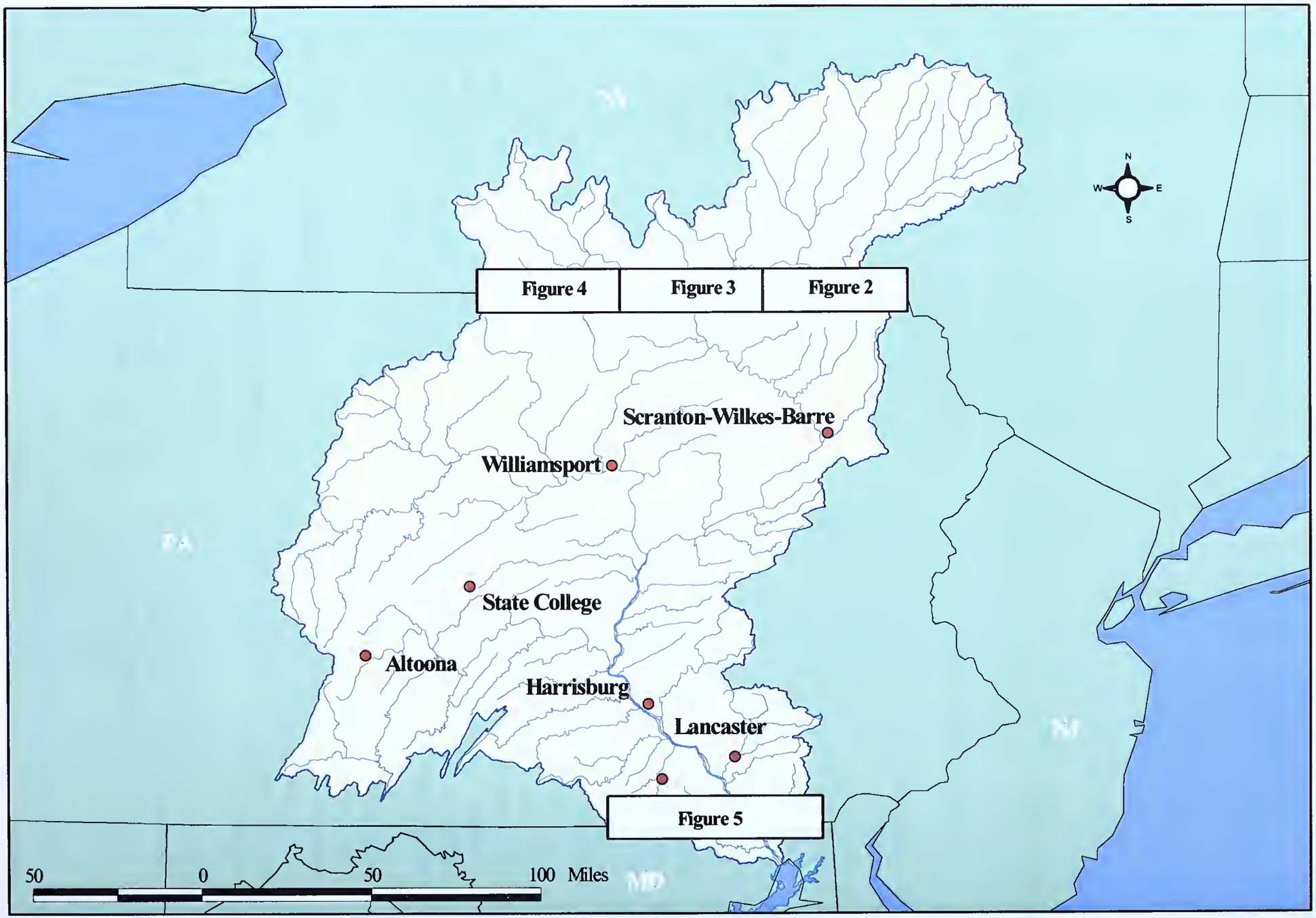



*Figure 1. Map Showing Susquehanna River Basin*

*Table 1. Interstate Streams in the Susquehanna River Basin*

| Stream Name | Monitoring Group | Flow Direction (from → to) |
|---|---|---|
| *Streams Along the New York-Pennsylvania Border* | | |
| Apalachin Creek | 2 | Pa.→N.Y. |
| Babcock Run | 3 | N.Y.→Pa. |
| Bentley Creek | 2 | Pa.→N.Y. |
| Bill Hess Creek | 3 | N.Y.→Pa. |
| Bird Creek | 3 | Pa.→N.Y. |
| Biscuit Hollow | 3 | N.Y.→Pa. |
| Briggs Hollow Run | 3 | N.Y.→Pa. |
| Bulkley Brook | 3 | N.Y.→Pa. |
| Camp Brook | 3 | N.Y.→Pa. |
| Cascade Creek | 2 | N.Y.→Pa. |
| Cayuta Creek | 1 | N.Y.→Pa. |
| Chemung River | 1 | N.Y.→Pa.→N.Y.→Pa. |
| Choconut Creek | 2 | Pa.→N.Y. |
| Cook Hollow | 3 | N.Y.→Pa. |
| Cowanesque River | 1 | Pa.→N.Y. |
| Deep Hollow Brook | 3 | N.Y.→Pa. |
| Denton Creek | 3 | N.Y.→Pa. |
| Dry Brook | 3 | N.Y.→Pa. |
| Holden Creek | 3 | N.Y.→Pa. |
| Little Snake Creek | 2 | Pa.→N.Y. |
| Little Wappasening Creek | 3 | Pa.→N.Y. |
| North Fork Cowanesque River | 3 | N.Y.→Pa. |
| Parks Creek | 3 | Pa.→N.Y. |
| Prince Hollow Run | 3 | N.Y.→Pa. |
| Red House/Beagle Hollow | 3 | N.Y.→Pa. |
| Russell Run | 3 | N.Y.→Pa. |
| Sackett Creek | 3 | Pa.→N.Y. |
| Seeley Creek | 2 | Pa.→N.Y. |
| South Creek | 2 | Pa.→N.Y. |
| Snake Creek | 2 | Pa.→N.Y. |
| Strait Creek | 3 | N.Y.→Pa. |
| Susquehanna River | 1 | N.Y.→Pa.→N.Y.→Pa. |
| Tioga River | 1 | Pa.→N.Y. |
| Troups Creek | 1 | N.Y.→Pa. |
| Trowbridge Creek | 2 | N.Y.→Pa. |
| Wappasening Creek | 2 | Pa.→N.Y. |
| White Branch | 3 | N.Y.→Pa. |
| White Hollow | 3 | Pa.→N.Y. |
| 17 Unnamed tributaries | 3 | N.Y.→Pa. |
| 2 Unnamed tributaries | 3 | Pa.→N.Y. |
| 2 Unnamed tributaries | 3 | Pa.→N.Y.→Pa. |
| 1 Unnamed tributary | 3 | N.Y.→Pa.→N.Y. |

*Table 1. Interstate Streams in the Susquehanna River Basin—Continued*

| Stream Name | Monitoring Group | Flow Direction (from → to) |
|---|---|---|
| *Streams Along the Pennsylvania-Maryland Border* | | |
| Big Branch Deer Creek | 2 | Pa.→Md. |
| Conowingo Creek | 1 | Pa.→Md. |
| Deer Creek | 1 | Pa.→Md. |
| Ebaughs Creek | 1 | Pa.→Md. |
| Falling Branch Deer Creek | 2 | Pa.→Md. |
| Island Branch | 3 | Pa.→Md. |
| Long Arm Creek | 2 | Md.→Pa. |
| Octoraro Creek | 1 | Pa.→Md. |
| Scott Creek | 1 | Md.→Pa. |
| South Branch Conewago Creek | 2 | Md.→Pa. |
| Susquehanna River | 1 | Pa.→Md. |
| 6 Unnamed tributaries | 3 | Md.→Pa. |
| 7 Unnamed tributaries | 3 | Pa.→Md. |

Streams with impaired water quality or judged to have a high potential for degradation were assigned to Group 1. Water samples were collected from these stations every other month except for the months of January and February. Sampling was alternated so that streams along the New York-Pennsylvania border were sampled during July, September, November, March, and May. Streams along the Pennsylvania-Maryland border were sampled during August, October, December, April, and June. Benthic macroinvertebrates were collected at Group 1 stations during July and August 1995.

Streams judged to have a moderate potential for impacts were assigned to Group 2. Water quality and macroinvertebrate samples were obtained from Group 2 stations once a year, during July and August 1995.

Streams judged to have a low potential for impacts were assigned to Group 3. These stations were not sampled, but were visually inspected for signs of degradation once a year.

Stream stations sampled during Fiscal Year 1996 are listed in Tables 2 and 3 and shown on Figures 2 through 5.

## Stream Discharge

Stream discharge was measured at all stations unless high streamflows made access impossible. Several stations are located near United States Geological Survey (USGS) stream gages. These stations include the following: the Susquehanna River at Windsor, N.Y., Kirkwood, N.Y., Sayre, Pa., Marietta, Pa., and Conowingo, Md.; the Chemung River at Chemung, N.Y.; the Tioga River at Lindley, N.Y.; and the Cowanesque River at Lawrenceville, Pa. Stream discharges from USGS gaging stations are reported as instantaneous discharges in cubic feet per second (cfs). Instantaneous discharge for stations not located near USGS gaging stations was measured at the time of sampling, using standard USGS procedures.

*Table 2. Stream Stations Sampled Along the New York-Pennsylvania Border and Sampling Rationale*

| Station | Stream and Location | Monitoring Group | Rationale |
|---|---|---|---|
| SUSQ 365.0 | Susquehanna River, Windsor, N.Y. | 1 | Large drainage area (1,882 sq. mi.); municipal discharges from Cooperstown, Sidney, Bainbridge, and Oneonta |
| SNAK 2.3 | Snake Creek, Brookdale, Pa. | 2 | Monitor for potential water quality impacts |
| SUSQ 340.0 | Susquehanna River, Kirkwood, N.Y. | 1 | Large drainage area (2,232 sq. mi.); historical pollution due to sewage from Lanesboro, Oakland, Susquehanna, Great Bend, and Hallstead |
| CHOC 9.1 | Choconut Creek, Vestal Center, N.Y. | 2 | Monitor for potential water quality impacts |
| APAL 6.9 | Apalachin Creek, Little Meadows, Pa. | 2 | Monitor for potential water quality impacts |
| WAPP 2.6 | Wappasening Creek Nichols, N.Y. | 2 | Monitor for potential water quality impacts |
| CAYT 1.7 | Cayuta Creek, Waverly, N.Y. | 1 | Municipal discharge from Waverly |
| TRUP 4.5 | Troups Creek, Austinburg, Pa. | 1 | High turbidity and moderately impaired macroinvertebrate populations |
| COWN 2.2 | Cowanesque River, Lawrenceville, Pa. | 1 | Impacts from flood control reservoir |
| TIOG 10.8 | Tioga River, Lindley, N.Y. | 1 | Pollution from acid mine discharges and impacts from flood control reservoirs |
| SEEL 10.3 | Seeley Creek, Seeley Creek, N.Y. | 2 | Monitor for potential water quality impacts |
| SOUT 7.8 | South Creek, Fassett, Pa. | 2 | Monitor for potential water quality impacts |
| BNTY 0.9 | Bentley Creek, Wellsburg, N.Y. | 2 | Monitor for potential water quality impacts |
| CHEM 12.0 | Chemung River, Chemung, N.Y. | 1 | Municipal and industrial discharges from Elmira |
| SUSQ 289.1 | Susquehanna River, Sayre, Pa. | 1 | Large drainage area (4,933 sq. mi.); municipal and industrial discharges |

*Table 3. Stream Stations Sampled Along the Pennsylvania-Maryland Border and Sampling Rationale*

| Station | Stream and Location | Monitoring Group | Rationale |
|---|---|---|---|
| SBCC 20.4 | South Branch Conewago Creek, Bandanna, Pa. | 2 | Monitor for potential water quality impacts |
| LNGA 2.5 | Long Arm Creek, Bandanna, Pa. | 2 | Monitor for potential water quality impacts |
| SUSQ 44.5 | Susquehanna River, Marietta, Pa. | 1 | Bracket hydroelectric dams near the state line |
| SCTT 3.0 | Scott Creek, Delta, Pa. | 1 | Pollution from untreated sewage |
| CNWG 4.4 | Conowingo Creek, Pleasant Grove, Pa. | 1 | High nutrient loads and other agricultural runoff; Nonpoint runoff to Chesapeake Bay |
| OCTO 6.6 | Octoraro Creek, Rising Sun, Md. | 1 | High nutrient loads due to agricultural runoff from New Bridge, Md. Water quality impacts from Octoraro Lake; Nonpoint runoff to Chesapeake Bay |
| EBAU 1.5 | Ebaughs Creek, Stewartstown, Pa. | 1 | Municipal discharge from Stewartstown; Nonpoint runoff to Chesapeake Bay |
| DEER 44.5 | Deer Creek, Gorsuch Mills, Md. | 1 | Past pollution from Gorsuch Mills, Md., Stewartstown, Pa.; Nonpoint runoff to Chesapeake Bay |
| BBDC 4.1 | Big Branch Deer Creek, Fawn Grove, Pa. | 2 | Monitor for potential water quality impacts |
| FBDC 4.1 | Falling Branch Deer Creek, Fawn Grove, Pa. | 2 | Monitor for potential water quality impacts |
| SUSQ 10.0 | Susquehanna River, Conowingo, Md. | 1 | Bracket hydroelectric dams near state line |

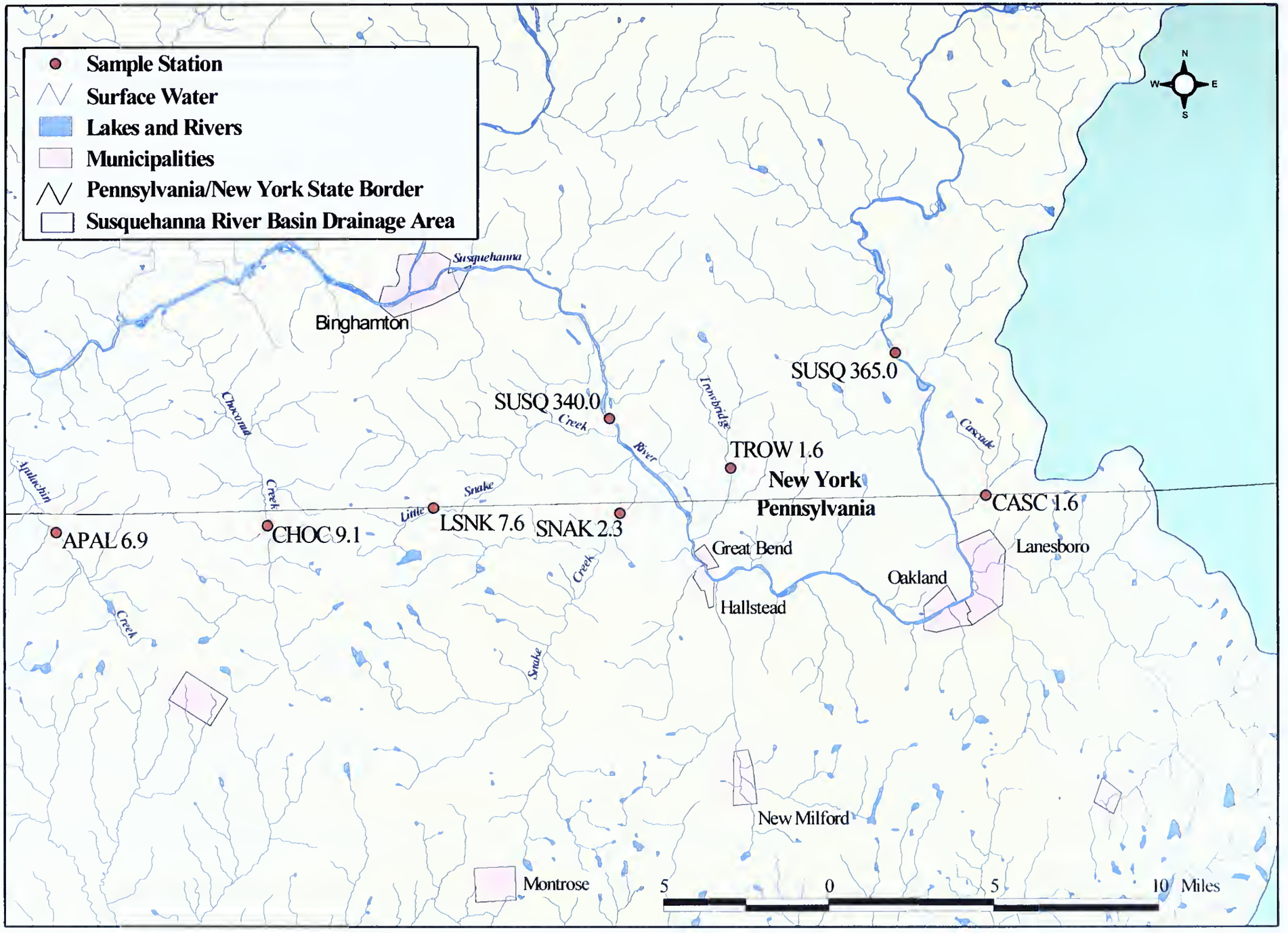



*Figure 2. Interstate Sample Stations Along the Pennsylvania-New York Border Between Cascade Creek and Apalachin Creek*

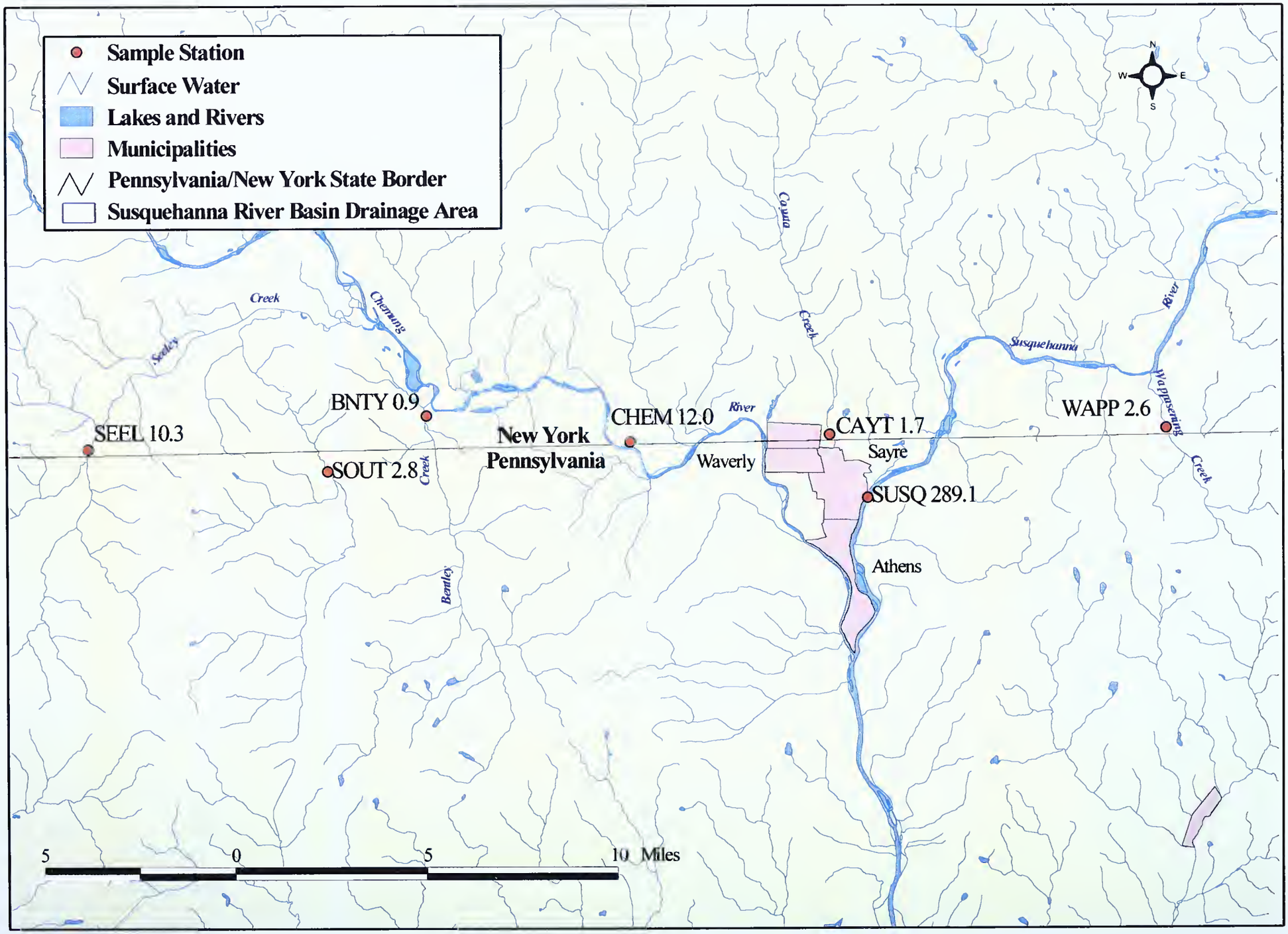



*Figure 3. Interstate Sample Stations Along the Pennsylvania-New York Border Between Seeley Creek and Wappasening Creek*

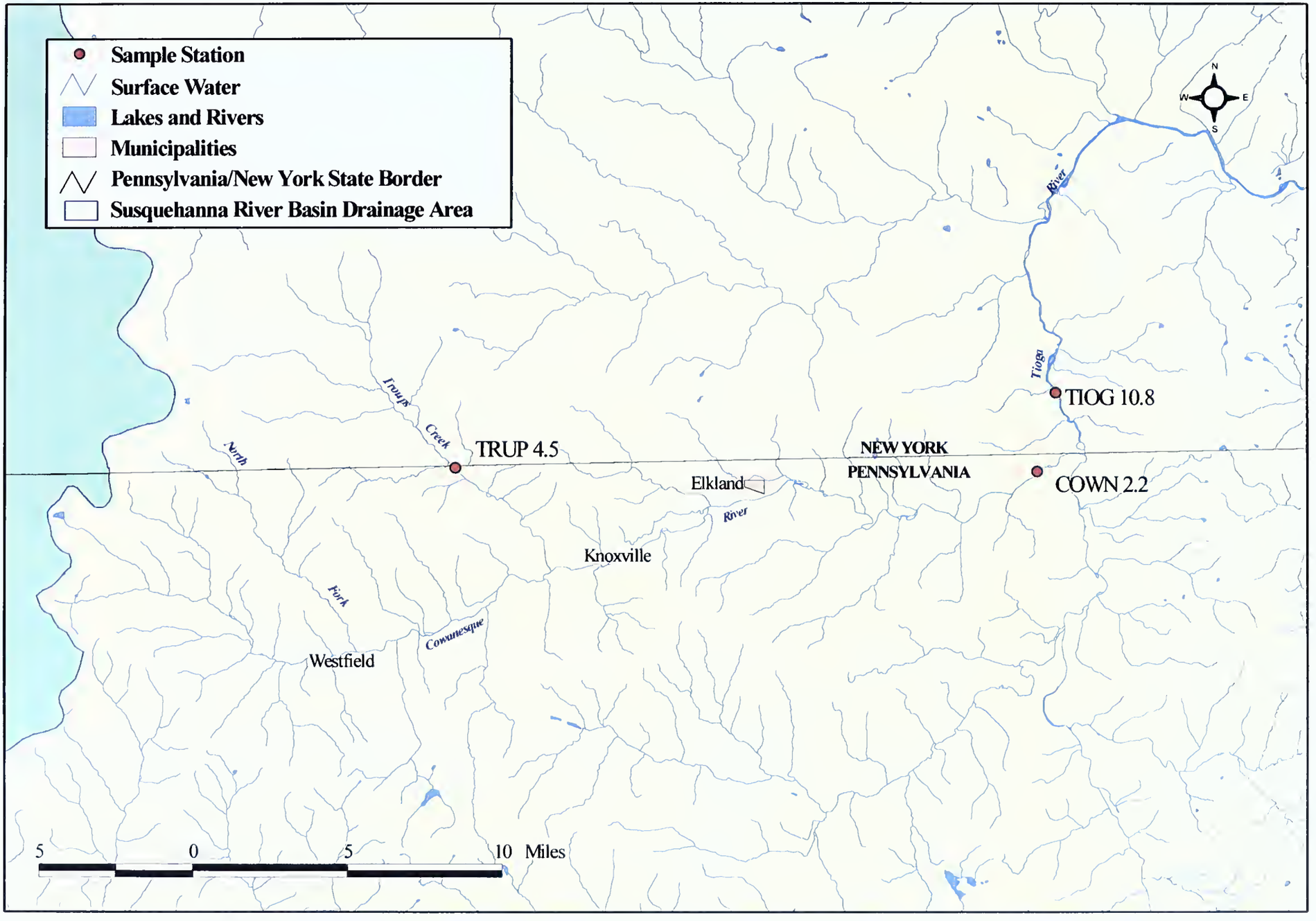



*Figure 4. Interstate Sample Stations Along the Pennsylvania-New York Border Between North Fork Cowanesque River and Tioga River*

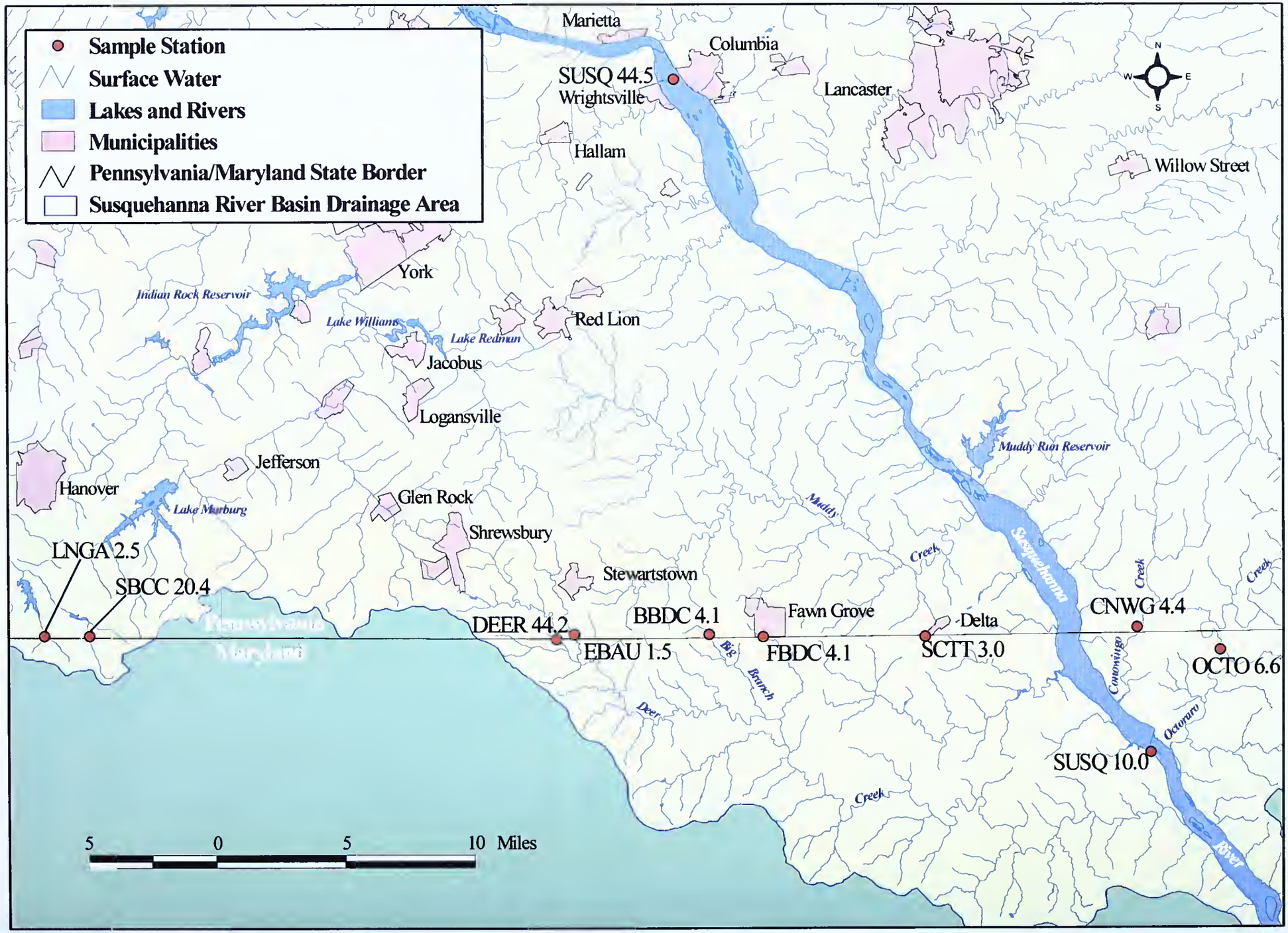



*Figure 5. Pennsylvania-Maryland Interstate Sample Stations*

## Water Samples

Water samples were collected at each of the sites to measure nutrient and metal concentrations. The chemical and physical parameters are listed in Table 4. Water samples were collected using a depth-integrating sampler.

Composite samples were obtained by collecting eight depth-integrated samples across the stream channel and combining them in a churn splitter that was previously rinsed with distilled water. Water samples were thoroughly mixed in the churn splitter and collected in 500 ml bottles. One raw and one filtered sample were collected for nutrient analysis. A raw and a filtered sample were collected in acid-rinsed bottles and fixed with concentrated nitric acid ($HNO_3$) for metals analysis. A cellulose nitrate filter with 0.45 micrometer pore size was used to obtain the

*Table 4. Monitored Parameters*

| Parameter | STORET Code |
|---|---|
| *Physical* | |
| Discharge | 00060 |
| Temperature | 00010 |
| *Chemical* | |
| Field Analyses | |
| Conductivity | 00095 |
| Dissolved Oxygen | 00300 |
| pH | 00400 |
| Alkalinity | 00410 |
| Acidity | 00435 |
| Laboratory Analyses | |
| Biochemical Oxygen Demand | 00310 |
| Solids, Dissolved<br>Solids, Total | 00515<br>00500 |
| Ammonia as Nitrogen, Dissolved<br>Ammonia as Nitrogen, Total | 00608<br>00610 |
| Nitrite as Nitrogen, Dissolved<br>Nitrite as Nitrogen, Total | 00613<br>00615 |
| Nitrate as Nitrogen, Dissolved<br>Nitrate as Nitrogen, Total | 00618<br>00620 |
| Kjeldahl Nitrogen, Dissolved<br>Kjeldahl Nitrogen, Total | 00623<br>00625 |
| Phosphorus, Dissolved<br>Phosphorus, Total | 00666<br>00665 |
| Orthophosphate, Dissolved<br>Orthophosphate, Total | 00671<br>70507 |
| Organic Carbon, Total | 00680 |
| Calcium, Total | 00916 |
| Magnesium, Total | 00927 |
| Chloride, Total | 00940 |
| Sulfate, Total | 00945 |
| Iron, Dissolved<br>Iron, Total | 01046<br>01045 |
| Manganese, Dissolved<br>Manganese, Total | 01056<br>01055 |
| Aluminum, Dissolved<br>Aluminum, Total | 01106<br>01105 |
| Turbidity | 82079 |

filtrate for laboratory analysis. New filter paper was used at each station. The samples were chilled on ice, and sent to the Pennsylvania Department of Environmental Protection (Pa. DEP), Bureau of Laboratories in Harrisburg, Pa.

### Field Chemistry

Temperature, dissolved oxygen, conductivity, pH, alkalinity, and acidity were measured in the field. Temperature and dissolved oxygen were measured using a YSI model 55 dissolved oxygen meter. The dissolved oxygen meter was calibrated at the beginning of each day when water samples were collected. A VWR Scientific model 2052 conductivity meter was used to measure conductivity. A Cole Parmer meter was used to measure pH. The pH meter was calibrated at the beginning of each day, and randomly checked during the day. Alkalinity was determined by titrating a known volume of sample water to pH 4.5 with 0.02 normal sulfuric acid ($H_2SO_4$). Acidity was measured by titrating a known volume of sample water to pH 8.3 with 0.02 normal sodium hydroxide (NaOH).

### Macroinvertebrate Sampling

Benthic macroinvertebrates were collected from Group 1 and Group 2 stations between July 25 and August 3, 1995. Macroinvertebrates were sampled to provide an indication of the ecological condition of the stream. Macroinvertebrates are defined as aquatic insects and other invertebrates too large to pass through a No. 30 sieve.

Benthic macroinvertebrate samples were analyzed using field and laboratory methods described by Plafkin and others (1989). Sampling was performed using a 1-square-meter kick screen, with size No. 30 mesh. The kick screen was stretched across the current to collect organisms dislodged from riffle areas by physical agitation of the stream substrate. Two kick screen samples were collected from a representative riffle at each station. Macroinvertebrates were washed from the seine and preserved in alcohol for identification in the laboratory.

In the laboratory, samples were sorted into 100-organism subsamples using a gridded pan and a random numbers table. The organisms contained in the subsamples were identified to genus (except for Chironomidae) and enumerated.

### Data Synthesis

Results of laboratory analyses for chemical parameters were compared to state water quality standards. In addition, a simple water quality index (WQI) was calculated, using procedures established by McMorran (1989). The WQI was used to make comparisons between sampling periods and stations within the same geographical region; therefore, the water quality data were divided into two groups. One group contained stations along the New York-Pennsylvania border, and the other group contained stations along the Pennsylvania-Maryland border. The data in each group were sorted by parameter and ranked by increasing order of magnitude. The rank of each chemical analysis was divided by the total number of observations in the group to obtain a percentile. The WQI score was calculated by averaging all the percentile ranks for each sample. High water quality index scores indicate poor water quality.

Benthic macroinvertebrate samples were assessed using the procedures described in Rapid Bioassessment Protocols for Use in Streams and Rivers (Plafkin and others, 1989). This method calculates a series of biological indexes for a stream and compares them to an unimpaired reference station in the same ecoregion to determine the degree of impairment. A high rapid bioassessment protocol score indicates a low degree of impairment and a healthy macroinvertebrate population. The reference stations used for this study are the Susquehanna River at Windsor, N.Y., Snake Creek at Brookdale, Pa., and the South Branch Conewago Creek near Bandanna, Pa.

## RESULTS

Water quality in most interstate streams continues to meet designated use classes and water quality standards. The parameter that most frequently exceeded water quality standards was total iron (Table 5, Figure 6). Only 50 out of a total of 2,693 observations exceeded water quality standards.

*Table 5. Water Quality Standards*

| Parameter | Number of Observations | Number Exceeding Standards | Standard |
|---|---|---|---|
| Alkalinity | 79 | 2 | Pa. aquatic life |
| Total iron | 79 | 22 | N.Y. health (water source) |
| | 79 | 13 | Pa. aquatic life |
| Dissolved Iron | 79 | 1 | Pa. aquatic life |
| pH | 71 | 8 | N.Y. aquatic life |
| | | 2 | Pa. aquatic life |
| | | 1 | Md. aquatic life |
| Total Manganese | 79 | 1 | Pa. water supply |

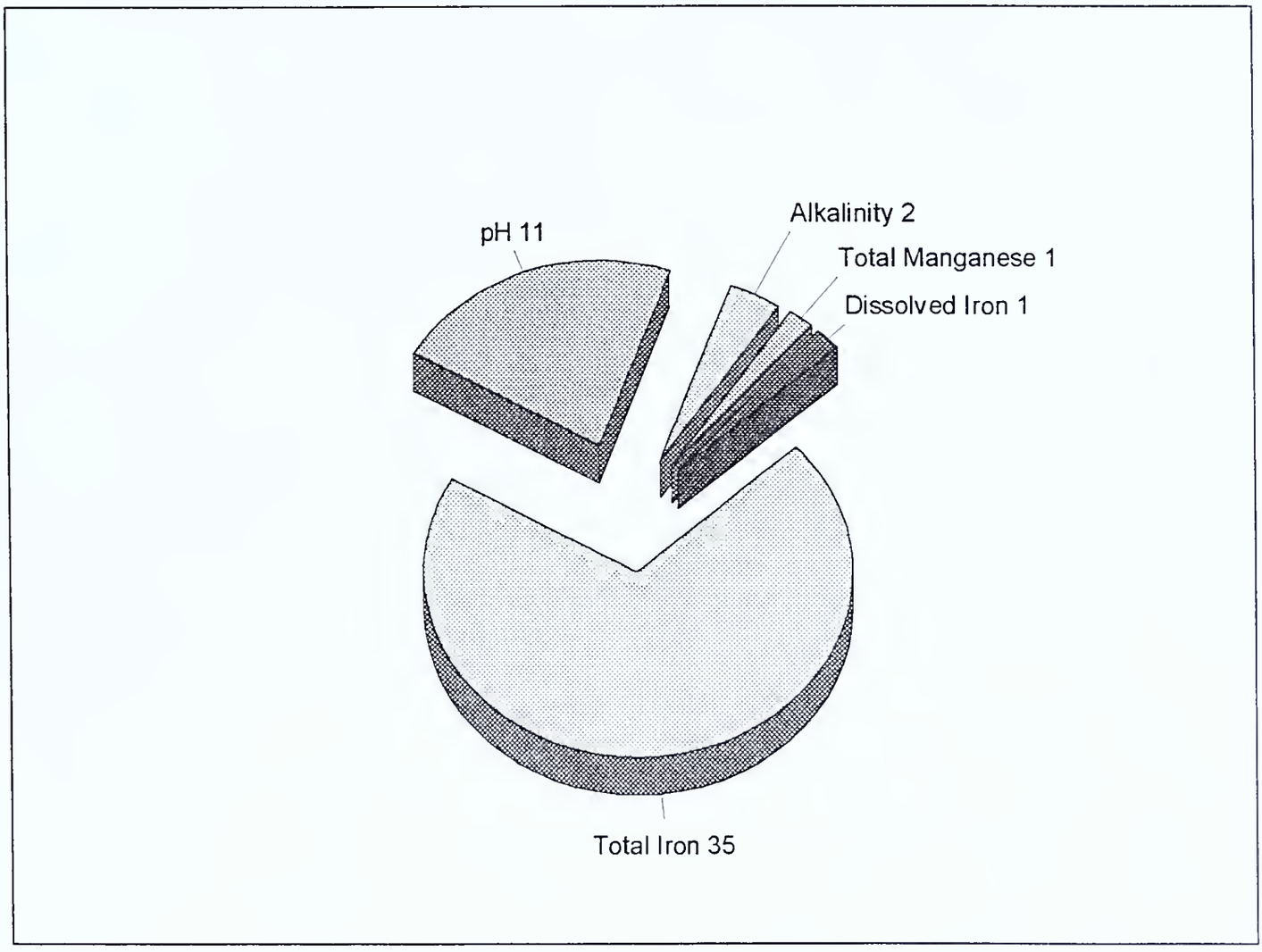



*Figure 6. Parameters Exceeding Water Quality Standards*

## New York-Pennsylvania Border Streams

Cascade Creek, Trowbridge Creek, and Little Snake Creek were not sampled because they were dry.

A slightly impaired biological community exists in Apalachin Creek at Little Meadows, Pa. Water quality data indicate elevated concentrations of iron and manganese. Total iron exceeded water quality standards.

Wappasening Creek at Nichols, N.Y., suffers from a slightly impaired biological community. Water quality data do not suggest any possible sources of degradation.

For the second consecutive year, Cayuta Creek at Waverly, N.Y., had a slightly impaired biological community. Elevated nutrient concentrations in Cayuta Creek indicate wastewater discharges from the Waverly sewage treatment facility may be affecting the biological community. Total iron exceeded water quality on two occasions, and pH exceeded standards on one occasion.

For the past four years, Troups Creek at Austinburg, Pa., has had a slightly to moderately impaired biological community. The community is dominated by pollution-tolerant taxa, which indicates possible water quality degradation. Extremely high concentrations of metals and solids were found in Troups Creek during the spring of 1996. The elevated concentrations of metals are probably the result of high stream flows and excessive runoff, which caused severe erosion damage in the Troups Creek basin. Total iron exceeded both New York and Pennsylvania water quality standards on two occasions.

The Cowanesque River continues to have a moderately to severely impaired biological community below the Cowanesque Reservoir. Increased phytoplankton production in the reservoir causes a shift in the biological community, resulting in a population dominated by filter-feeding organisms. The absence of other feeding groups results in a low number of taxa, which causes the RBP score to drop. The water quality data indicate elevated concentrations of nutrients and metals. High concentrations of metals were observed during the spring of 1996. Total iron exceeded both New York and Pennsylvania water quality standards on two occasions.

Acid mine drainage in the headwaters of the Tioga River contributes to poor water quality downstream to the Tioga-Hammond Reservoir. The reservoir buffers some of the effects of the acid mine drainage; however, impacts may still be detected in the river downstream from the dam. The acid mine drainage results in elevated concentrations of metals, which contribute to high WQI scores. Total iron exceeded both New York and Pennsylvania water quality standards on two occasions. The high concentrations of metals result in a slightly impaired biological community in the Tioga River.

Seeley Creek shows signs of a moderately impaired macroinvertebrate population. The water quality in Seeley Creek is good, and the data do not suggest any possible sources of degradation. The impaired biological community is probably the result of flow related incidents. During drought periods, large reaches of the stream bottom in Seeley Creek become dry. Also, the stream channel is unstable during periods of high stream flow, which results in the bottom substrate being redistributed to form new channels.

South Creek near Fassett, Pa., continues to have a slightly impaired macroinvertebrate community. Chemical data indicate overall water quality in South Creek is good. On one occasion, total iron exceeded water quality standards.

Bentley Creek at Wellsburg, N.Y., has a slightly impaired biological community. Water quality data do not suggest any possible sources of degradation.

For the past five years, the Chemung River has maintained a slightly to moderately impaired macroinvertebrate community. Wastewater discharges from the city of Elmira, N.Y., result in elevated nutrient and chloride concentrations and contribute to the impaired biological community in the Chemung River. Total iron and pH exceeded water quality standards on one occasion.

Wappasening Creek at Nichols, N.Y., suffers from a moderately impaired biological community. However, chemical data indicate overall water quality in Wappasening Creek is exceptional.

## Pennsylvania-Maryland Border Streams

Long Arm Creek at Bandanna, Pa., has a slightly impaired biological community. Chemical data indicate overall water quality in Long Arm Creek is good.

Scott Creek at Delta, Pa., has had a moderately to severely impaired macroinvertebrate population for the past five years. Raw sewage discharges from Cardiff, Md., continue to degrade the water quality and macroinvertebrate population in Scott Creek. Nutrient concentrations were high in most of the samples, especially during periods of low stream flows. High streamflows and runoff events appear to dilute the pollutants, resulting in lower WQI values.

Conowingo Creek at Pleasant Grove, Pa., continues to have elevated nutrient concentrations and high WQI scores. Total and dissolved nitrate concentrations were high throughout the sampling period. Agriculture is the most prevalent land use in the watershed, and excess nutrients may enrich the stream. Macroinvertebrate analysis indicates that a non-impaired biological community exists in Conowingo Creek.

For the fifth consecutive year, Ebaughs Creek near Stewartstown, Pa., has had a slightly to moderately impaired macroinvertebrate community. The high WQI scores indicate wastewater discharges from the Stewartstown sewage treatment facility, and leachate from the York County Solid Waste and Refuse Authority landfill, affect the biological community. High concentrations of total solids, dissolved solids, total chlorine, and total calcium were found throughout the sampling period. Total iron exceeded standards on one occasion.

A slightly impaired macroinvertebrate community exists in Deer Creek at Gorsuch Mills, Md. Water quality data do not suggest any possible sources of degradation.

A slightly impaired macroinvertebrate community exists in the Falling Branch of Deer Creek at Fawn Grove, Pa. Data from the station, located in a cattle pasture, show the loss of habitat is due to excessive erosion and siltation

Station summaries are presented in Tables 6 through 31. The summaries include listings of parameters exceeding water quality standards. WQI values, and parameters that exceeded the 90th percentile at each station. Graphs are provided showing historical comparisons for water quality and biological conditions over the last five years.

## ABBREVIATIONS USED IN TABLES 6 THROUGH 31

| Abbrev. | Parameter |
|---|---|
| ALK | Alkalinity |
| BOD | Biochemical Oxygen Demand |
| COND | Conductivity |
| DAl | Dissolved Aluminum |
| TAl | Total Aluminum |
| TCa | Total Calcium |
| TCl | Total Chloride |
| DFe | Dissolved Iron |
| TFe | Total Iron |
| DKN | Dissolved Kjeldahl N |
| TKN | Total Kjeldahl N |
| TMg | Total Magnesium |
| DMn | Dissolved Manganese |
| TMn | Total Manganese |
| DNH3 | Dissolved Ammonia |
| TNH3 | Total Ammonia |
| DNO2 | Dissolved Nitrite |
| TNO2 | Total Nitrite |
| DNO3 | Dissolved Nitrate |
| TNO3 | Total Nitrate |
| DO | Dissolved Oxygen |
| DP | Dissolved Phosphorus |
| TP | Total Phosphorus |
| DPO4 | Dissolved Orthophosphate |
| TPO4 | Total Orthophosphate |
| DS | Dissolved Solids |
| TS | Total Solids |
| TSO4 | Total Sulfate |
| TOC | Total Organic Carbon |
| TURB | Total Turbidity |

WQI—Water Quality Index
RBP—Rapid Bioassessment Protocols

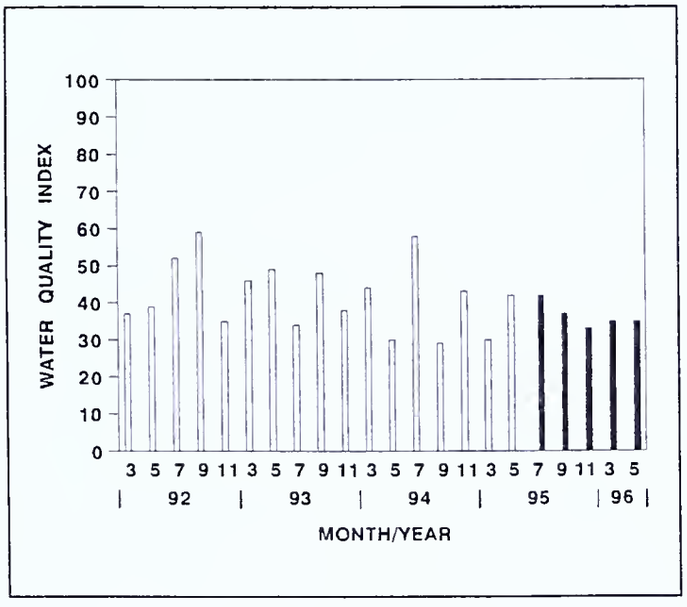
*Table 6. Water Quality Summary Susquehanna River at Windsor, N.Y.*

| Parameters Exceeding Standards | | | | |
|---|---|---|---|---|
| Parameter | Date | Value | Standard | State |
| TFe | 03/19/96 | 400 µg/l | 300 µg/l | N.Y. health (water source) and aquatic |
| TFe | 05/15/96 | 822 µg/l | 300 µg/l | N.Y. health (water source) and aquatic |

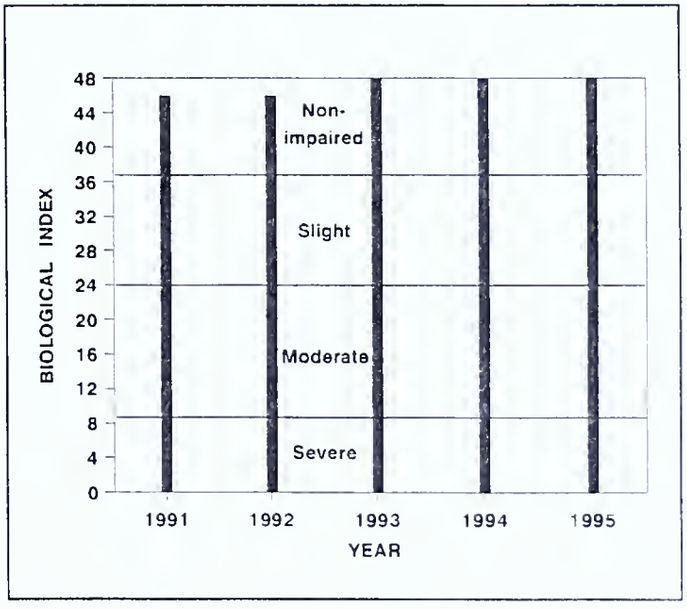
| Date | WQI | Parameters Exceeding 90th Percentile | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 07/24/95 | 42 | | | | | | | | |
| 09/18/95 | 37 | | | | | | | | |
| 11/07/95 | 33 | | | | | | | | |
| 03/19/96 | 35 | | | | | | | | |
| 05/15/96 | 35 | | | | | | | | |

**Biological Summary**

Number of taxa: 21
Diversity index: 3.94
RBP score: 48
RBP condition: Reference




Water Quality Index




Biological Index

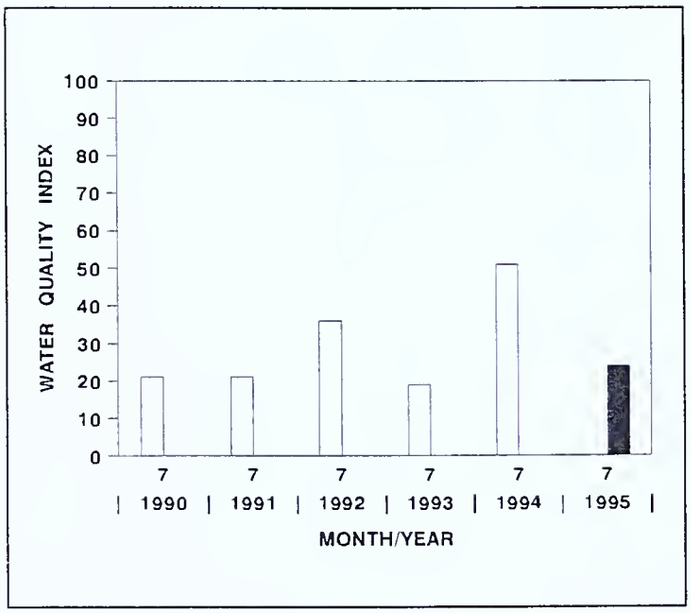
*Table 7. Water Quality Summary Snake Creek at Brookdale, Pa.*

| Parameters Exceeding Standards | | | | |
|---|---|---|---|---|
| Parameter | Date | Value | Standard | State |
| None | | | | |

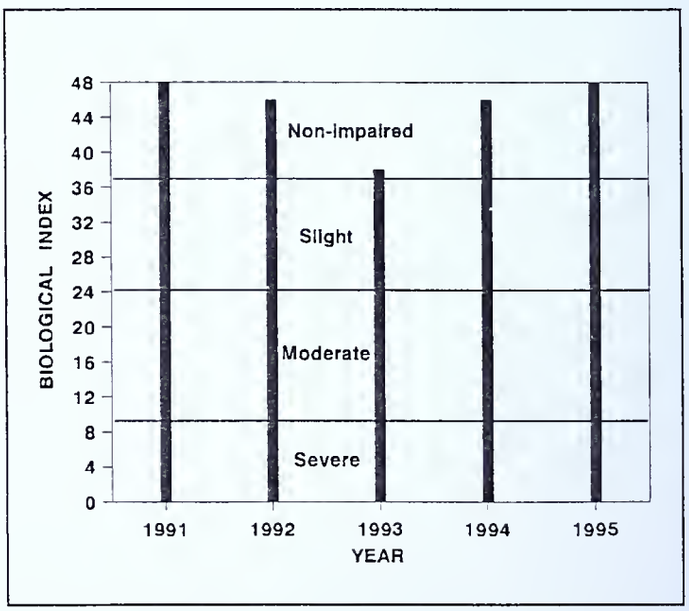
| Date | WQI | Parameters Exceeding 90th Percentile | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 07/24/95 | 24 | ALK | | | | | | | |

**Biological Summary**

Number of taxa: 23
Diversity index: 3.89
RBP score: 48
RBP condition: Reference




**Water Quality Index**




**Biological Index**

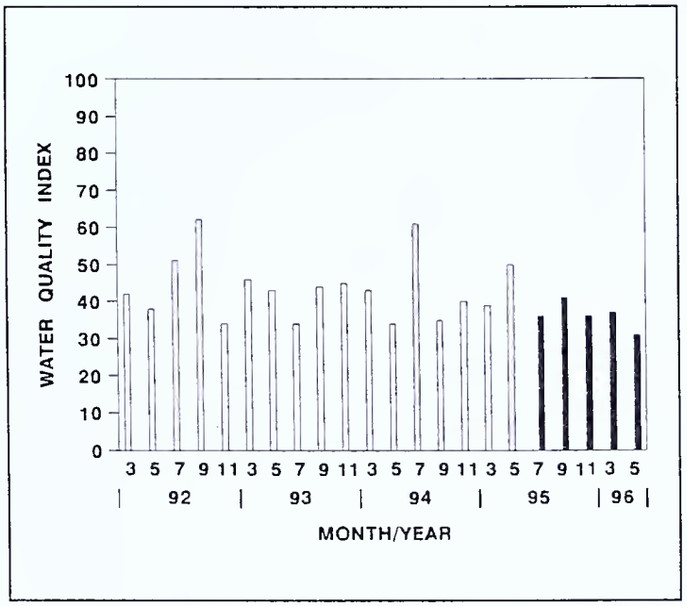
*Table 8. Water Quality Summary Susquehanna River at Kirkwood, N.Y.*

| Parameters Exceeding Standards | | | | |
|---|---|---|---|---|
| Parameter | Date | Value | Standard | State |
| pH | 07/24/95 | 8.55 | 6.5 - 8.5 | N.Y. aquatic life |
| pH | 09/18/95 | 8.60 | 6.5 - 8.5 | N.Y. aquatic life |
| TFe | 03/19/96 | 333 µg/l | 300 µg/l | N.Y. health (water source) and aquatic |
| TFe | 05/15/96 | 878 µg/l | 300 µg/l | N.Y. health (water source) and aquatic |

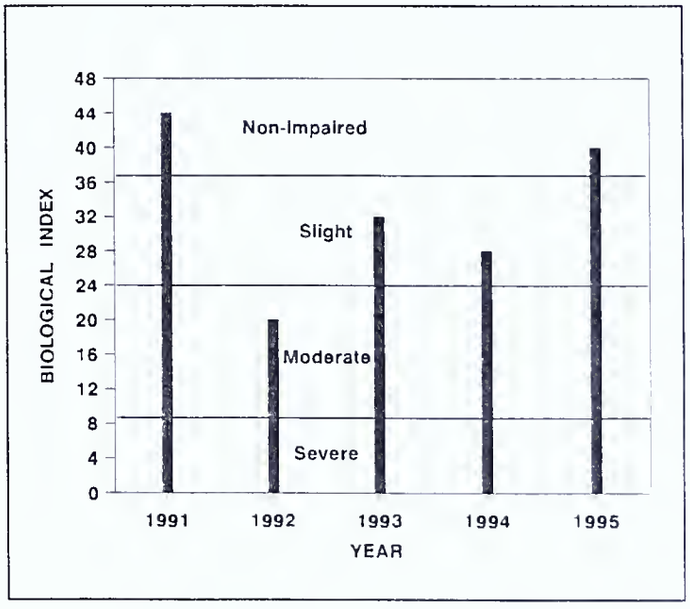
| Date | WQI | Parameters Exceeding 90th Percentile | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 07/24/95 | 36 | | | | | | | | |
| 09/18/95 | 41 | | | | | | | | |
| 11/07/95 | 36 | | | | | | | | |
| 03/19/96 | 37 | | | | | | | | |
| 05/15/96 | 31 | | | | | | | | |

**Biological Summary**

Number of taxa: 21
Diversity index: 3.71
RBP score: 40
RBP condition: Non-impaired




**Water Quality Index**




**Biological Index**

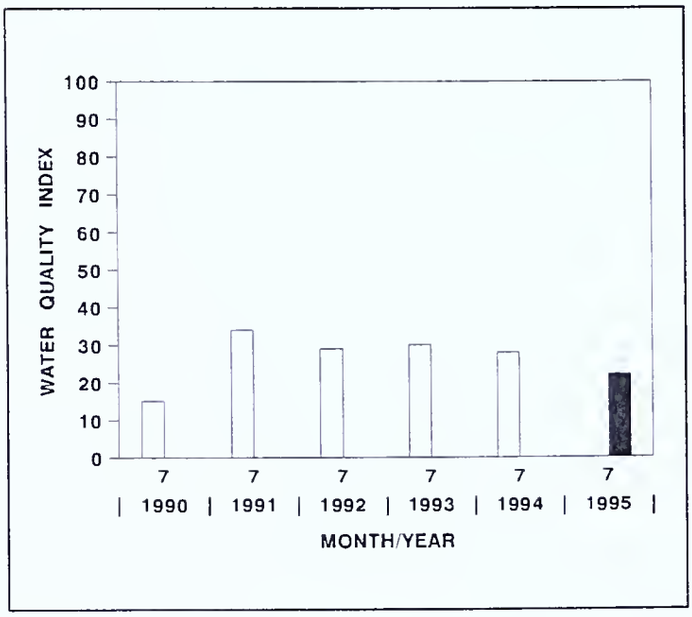
*Table 9. Water Quality Summary Choconut Creek at Vestal Center, N.Y.*

| Parameters Exceeding Standards | | | | |
|---|---|---|---|---|
| Parameter | Date | Value | Standard | State |
| None | | | | |

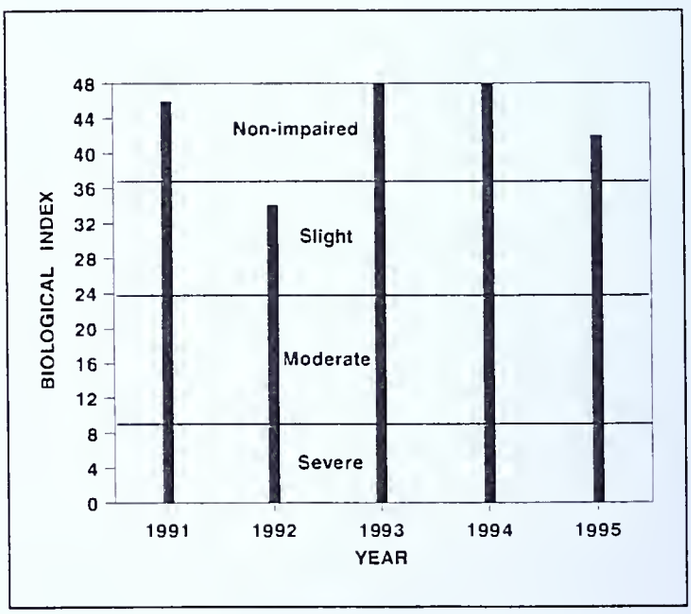
| Date | WQI | Parameters Exceeding 90th Percentile | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 07/25/95 | 22 | | | | | | | | |

**Biological Summary**

Number of taxa: 20
Diversity index: 3.75
RBP score: 42
RBP condition: Non-impaired




**Water Quality Index**




**Biological Index**

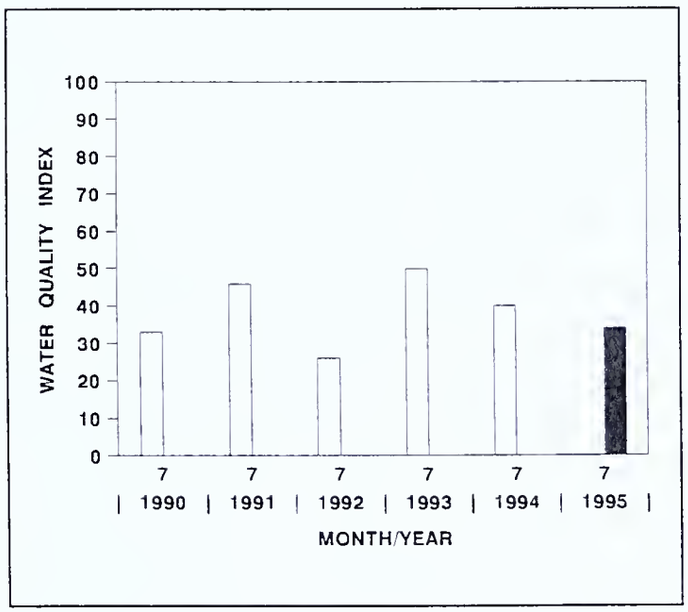
*Table 10. Water Quality Summary Apalachin Creek at Little Meadows, Pa.*

| Parameters Exceeding Standards | | | | |
|---|---|---|---|---|
| Parameter | Date | Value | Standard | State |
| TFe | 07/25/95 | 834 µg/l | 300 µg/l | N.Y. health (water source) and aquatic |

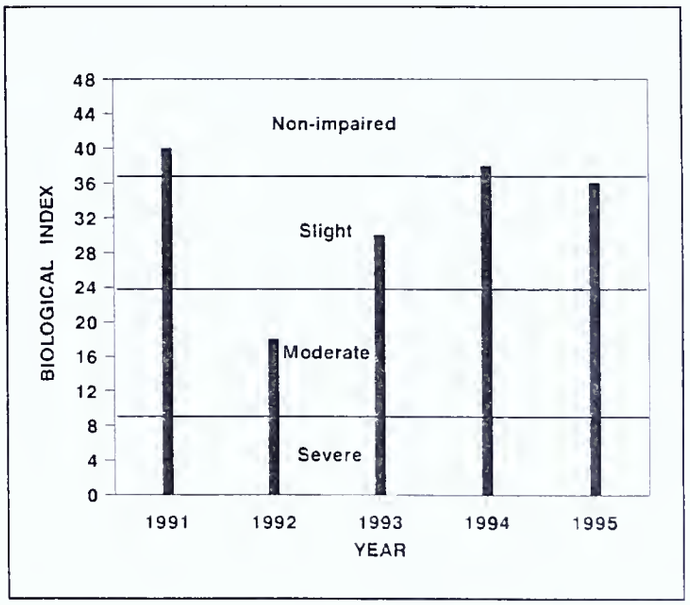
| Date | WQI | Parameters Exceeding 90th Percentile | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 07/25/95 | 34 | DFe | TMn | DMn | | | | | |

**Biological Summary**

Number of taxa: 20
Diversity index: 3.37
RBP score: 36
RBP condition: Slightly impaired




**Water Quality Index**




**Biological Index**

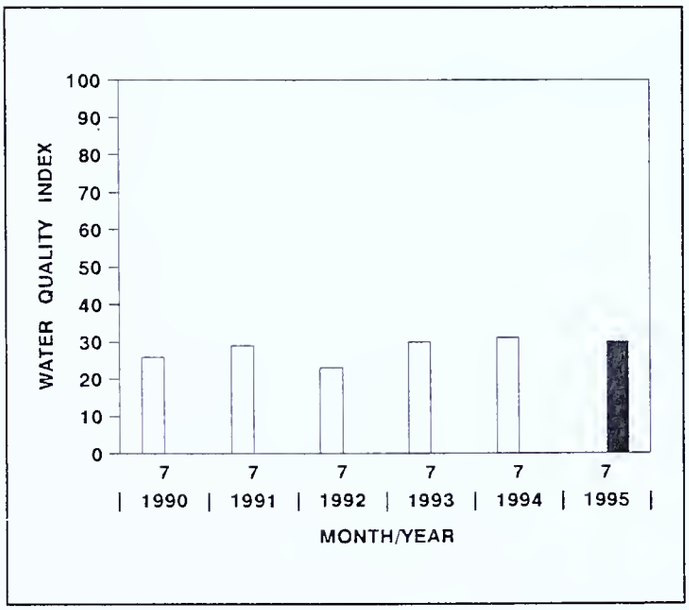
*Table 11. Water Quality Summary Wappasening Creek at Nichols, N.Y.*

| Parameters Exceeding Standards | | | | |
|---|---|---|---|---|
| Parameter | Date | Value | Standard | State |
| None | | | | |

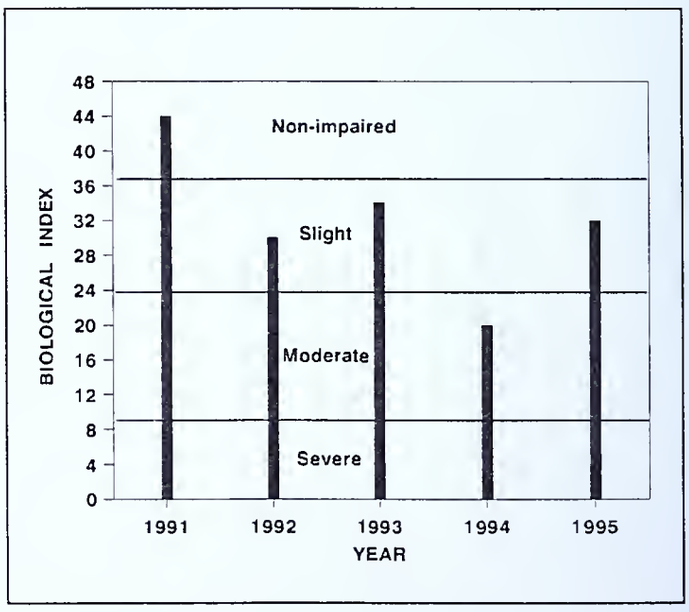
| Date | WQI | Parameters Exceeding 90th Percentile | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 07/25/95 | 30 | | | | | | | | |

**Biological Summary**

Number of taxa: 15
Diversity index: 3.10
RBP score: 32
RBP condition: Slightly impaired




**Water Quality Index**




**Biological Index**

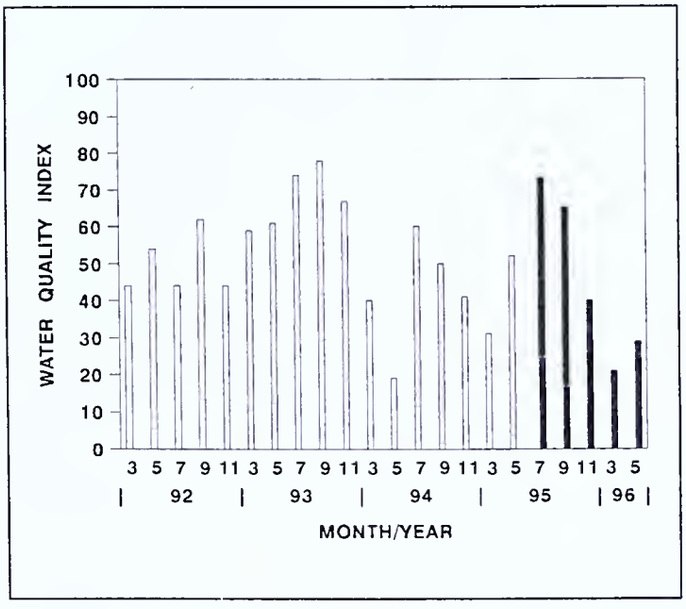
*Table 12. Water Quality Summary Cayuta Creek at Waverly, N.Y.*

| Parameters Exceeding Standards | | | | |
|---|---|---|---|---|
| Parameter | Date | Value | Standard | State |
| pH | 07/25/95 | 8.60 | 6.5 - 8.5 | N.Y. aquatic life |
| TFe | 03/19/96 | 318 µg/l | 300 µg/l | N.Y. health (water source) and aquatic |
| TFe | 05/15/96 | 459 µg/l | 300 µg/l | N.Y. health (water source) and aquatic |

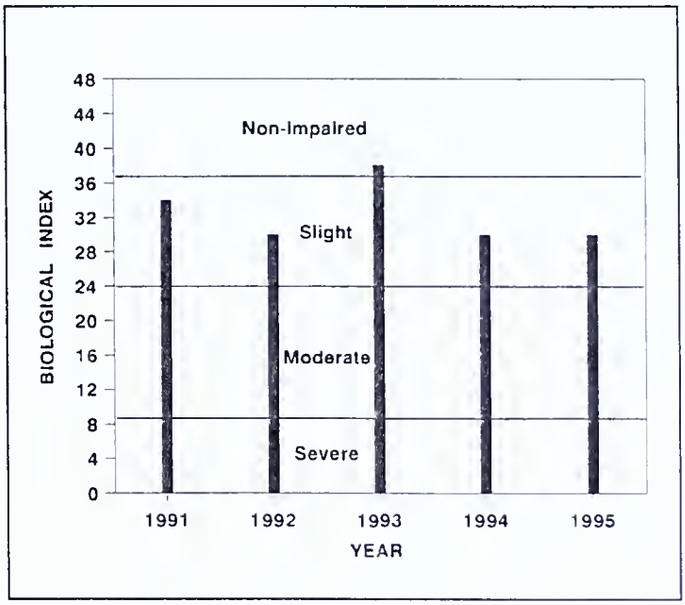
| Date | WQI | Parameters Exceeding 90th Percentile | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 07/25/95 | 73 | COND | TS | DS | DNO2 | DNO3 | TP | DP | DPO4 |
| | | TCa | TCl | TPO4 | | | | | |
| 09/18/95 | 65 | COND | TS | DS | DNO3 | TNO3 | TKN | DP | DPO4 |
| | | TCa | TMg | TCl | TSO4 | | | | |
| 11/07/95 | 40 | | | | | | | | |
| 03/19/96 | 21 | ALK | | | | | | | |
| 05/15/96 | 29 | | | | | | | | |

**Biological Summary**

Number of taxa: 19
Diversity index: 2.94
RBP score: 30
RBP condition: Slightly impaired




**Water Quality Index**




**Biological Index**

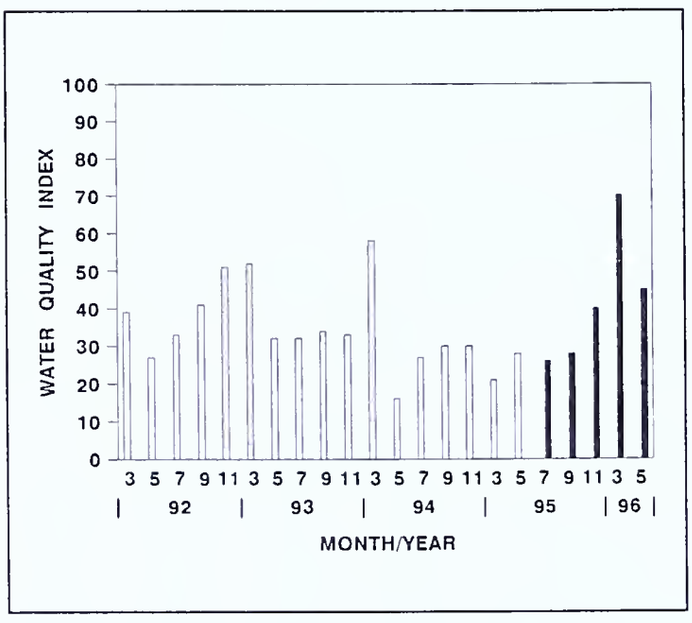
*Table 13. Water Quality Summary Troups Creek at Austinburg, Pa.*

| Parameters Exceeding Standards | | | | |
|---|---|---|---|---|
| Parameter | Date | Value | Standard | State |
| pH | 07/27/95 | 8.75 | 6.5 - 8.5 | N.Y. aquatic life |
| TFe | 11/08/95 | 675 µg/l | 300 µg/l | N.Y. health (water source) and aquatic |
| TFe | 03/20/96 | 28,000 µg/l | 300 µg/l | N.Y. health (water source) and aquatic |
| TFe | 03/20/96 | 28,000 µg/l | 1,500 µg/l | Pa. water supply and aquatic life |
| TFe | 05/16/96 | 4,660 µg/l | 300 µg/l | N.Y. health (water source) and aquatic |
| TFe | 05/16/96 | 4,660 µg/l | 1,500 µg/l | Pa. water supply and aquatic life |

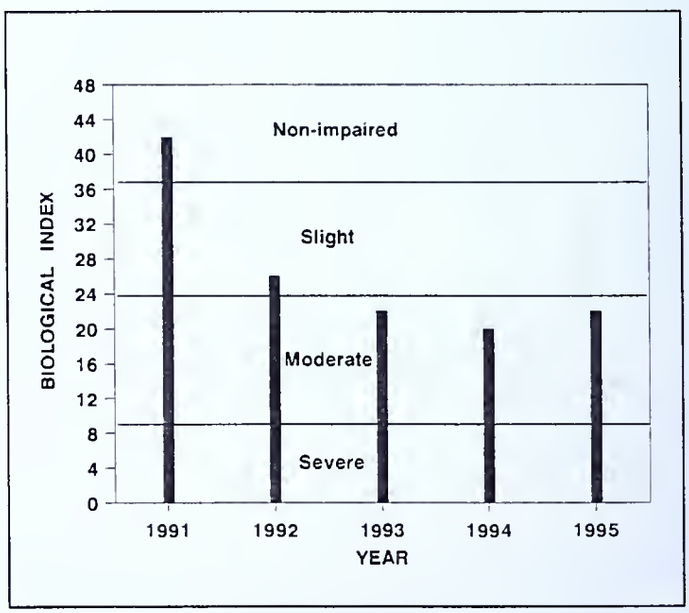
| Date | WQI | Parameters Exceeding 90th Percentile | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 07/27/95 | 26 | | | | | | | | |
| 09/19/95 | 28 | TCa | TMg | | | | | | |
| 11/08/95 | 40 | | | | | | | | |
| 03/20/96 | 70 | TS | DNH3 | TNH3 | DNO3 | DKN | TKN | TP | TOC |
| | | TFe | TMn | TAl | TPO4 | TURB | | | |
| 05/16/96 | 45 | DNO3 | TNO3 | TFe | TAl | | | | |

**Biological Summary**

Number of taxa: 13
Diversity index: 2.70
RBP score: 22
RBP condition: Moderately impaired




**Water Quality Index**




**Biological Index**

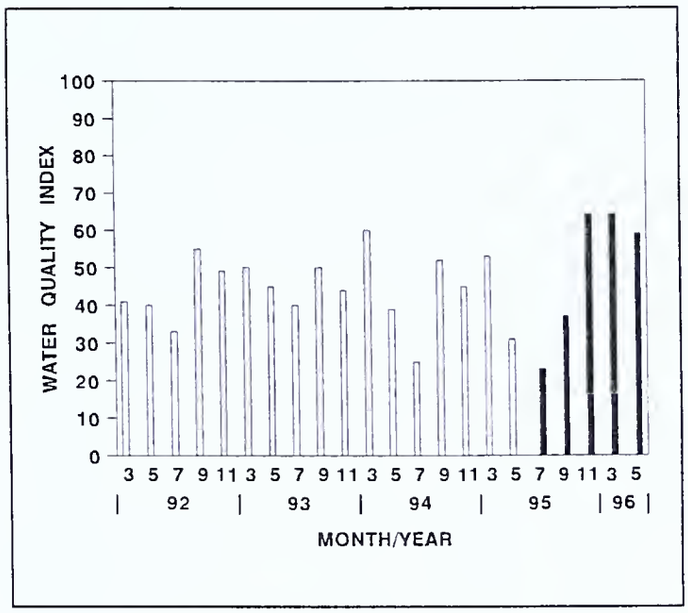
*Table 14. Water Quality Summary Cowanesque River at Lawrenceville, Pa.*

| Parameters Exceeding Standards | | | | |
|---|---|---|---|---|
| Parameter | Date | Value | Standard | State |
| TFe | 11/08/95 | 1,280 µg/l | 300 µg/l | N.Y. health (water source) and aquatic |
| TFe | 03/20/96 | 2,810 µg/l | 300 µg/l | N.Y. health (water source) and aquatic |
| TFe | 03/20/96 | 2,810 µg/l | 1,500 µg/l | Pa. water supply and aquatic life |
| TFe | 05/16/96 | 12,000 µg/l | 300 µg/l | N.Y. health (water source) and aquatic |
| TFe | 05/16/96 | 12,000 µg/l | 1,500 µg/l | Pa. water supply and aquatic life |

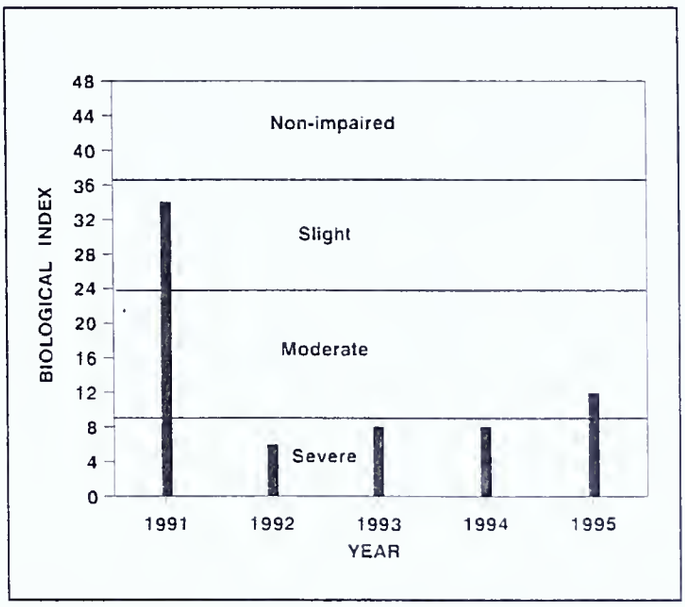
| Date | WQI | Parameters Exceeding 90th Percentile | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 07/27/95 | 23 | | | | | | | | |
| 09/19/95 | 37 | BOD | | | | | | | |
| 11/18/95 | 64 | DNH3 | DNO2 | DKN | DMn | | | | |
| 03/20/96 | 64 | DO | DNH3 | TNH3 | DNO3 | TNO3 | TPO4 | | |
| 05/16/96 | 59 | ALK | TS | TNH3 | TNO2 | DKN | TKN | TP | TOC |
| | | TFe | DFe | TAI | TURB | | | | |

**Biological Summary**

Number of taxa: 11
Diversity index: 2.35
RBP score: 12
RBP condition: Moderately impaired




**Water Quality Index**




**Biological Index**

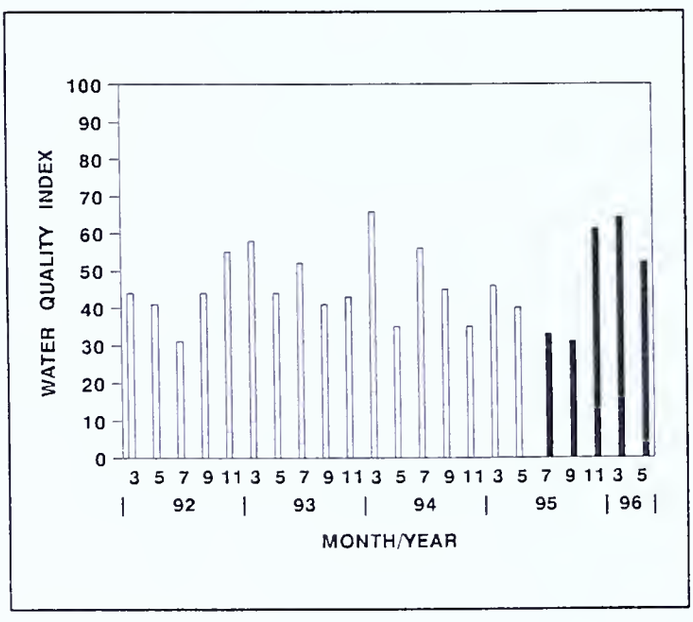
*Table 15. Water Quality Summary Tioga River at Lindley, N.Y.*

| Parameters Exceeding Standards | | | | |
|---|---|---|---|---|
| Parameter | Date | Value | Standard | State |
| TFe | 11/08/95 | 844 µg/l | 300 µg/l | N.Y. health (water source) and aquatic |
| TFe | 03/20/96 | 3,760 µg/l | 300 µg/l | N.Y. health (water source) and aquatic |
| TFe | 03/20/96 | 3,760 µg/l | 1,500 µg/l | Pa. water supply and aquatic life |
| TFe | 05/16/96 | 2,580 µg/l | 300 µg/l | N.Y. health (water source) and aquatic |
| TFe | 05/16/96 | 2,580 µg/l | 1,500 µg/l | Pa. water supply and aquatic life |

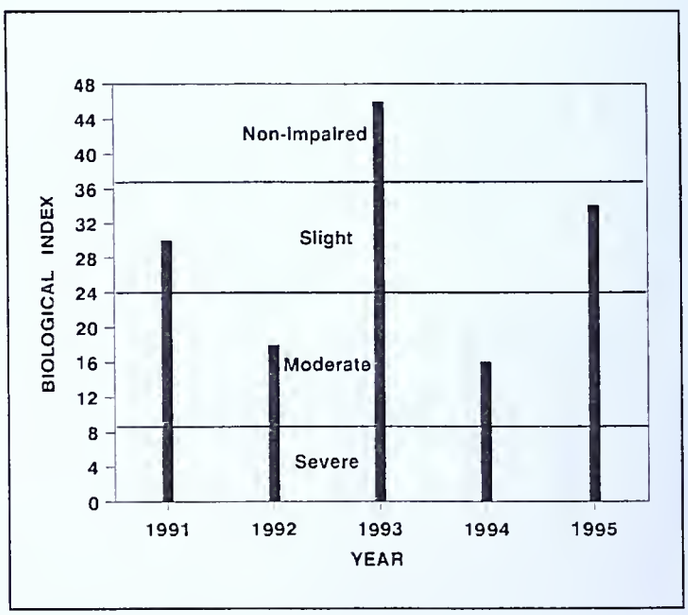
| Date | WQI | Parameters Exceeding 90th Percentile | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 07/26/95 | 33 | TSO4 | | | | | | | |
| 09/19/95 | 31 | TSO4 | | | | | | | |
| 11/08/95 | 61 | TMn | DMn | | | | | | |
| 03/20/96 | 64 | DO | ALK | DNH3 | TFe | DFe | TMn | DMn | TAl |
| | | TPO4 | | | | | | | |
| 05/16/96 | 52 | TNO2 | DFe | TURB | | | | | |

**Biological Summary**

Number of taxa: 16
Diversity index: 3.14
RBP score: 34
RBP condition: Slightly impaired




**Water Quality Index**




**Biological Index**

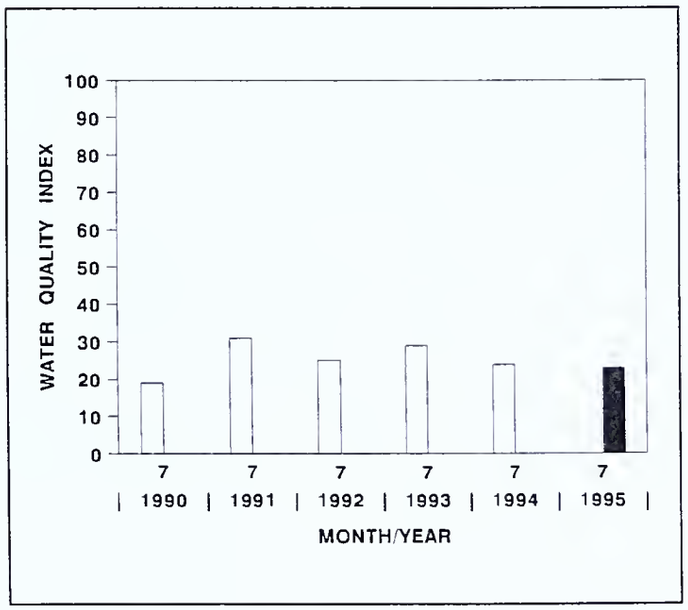
*Table 16. Water Quality Summary Seeley Creek at Seeley Creek, N.Y.*

| Parameters Exceeding Standards | | | | |
|---|---|---|---|---|
| Parameter | Date | Value | Standard | State |
| None | | | | |

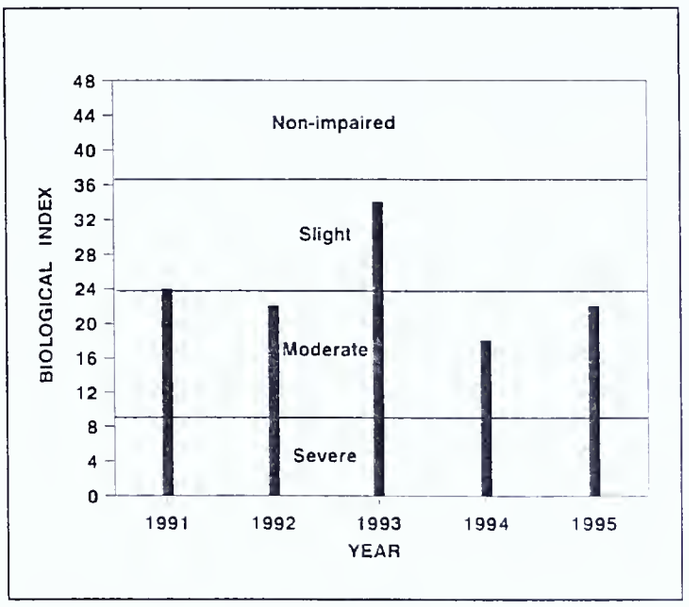
| Date | WQI | Parameters Exceeding 90th Percentile | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 07/26/95 | 23 | TCa | | | | | | | |

**Biological Summary**

Number of taxa: 15
Diversity index: 2.38
RBP score: 22
RBP condition: Moderately impaired




**Water Quality Index**




**Biological Index**

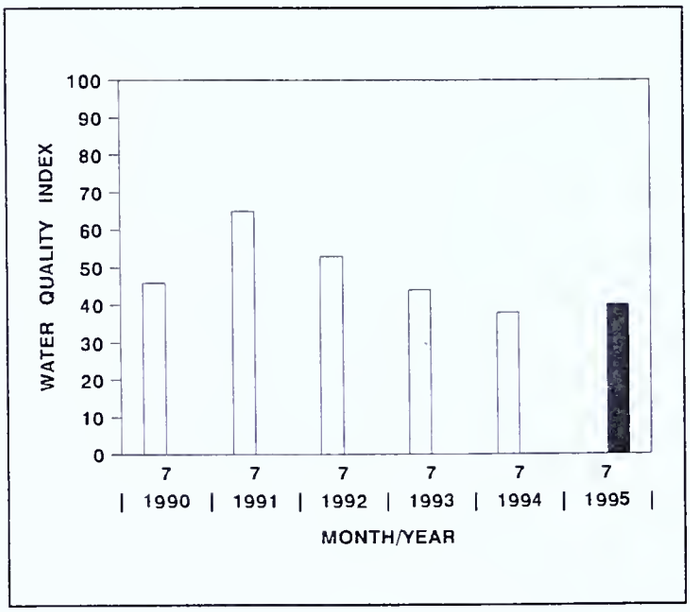
*Table 17. Water Quality Summary South Creek at Fassett, Pa.*

| Parameters Exceeding Standards | | | | |
|---|---|---|---|---|
| Parameter | Date | Value | Standard | State |
| TFe | 07/26/95 | 402 µg/l | 300 µg/l | N.Y. health (water source) and aquatic |

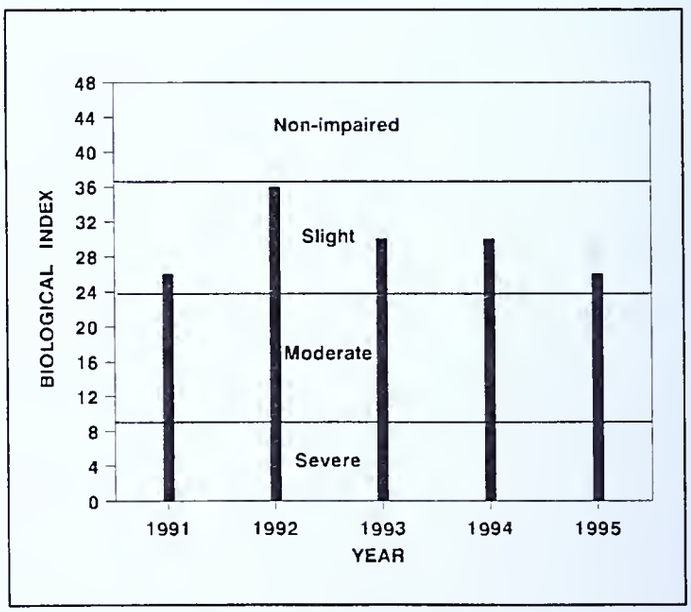
| Date | WQI | Parameters Exceeding 90th Percentile | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 07/26/95 | 40 | TOC | | | | | | | |

**Biological Summary**

Number of taxa: 13
Diversity index: 2.98
RBP score: 26
RBP condition: Slightly impaired




**Water Quality Index**




**Biological Index**

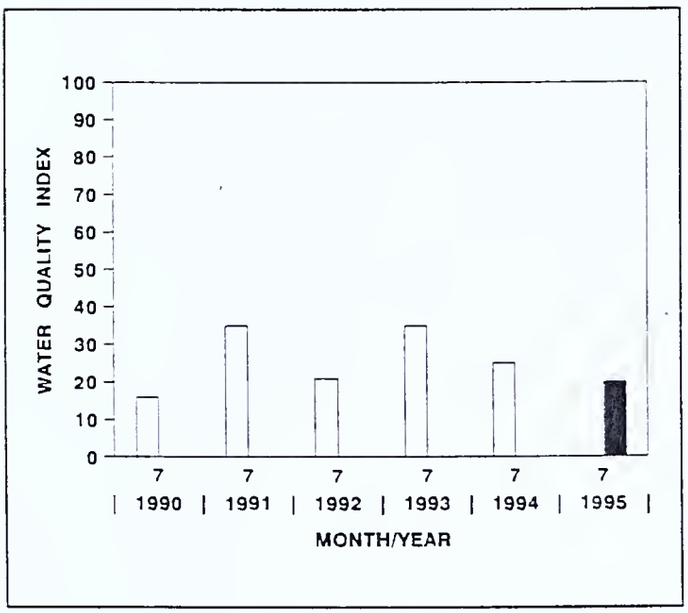
*Table 18. Water Quality Summary Bentley Creek at Wellsburg, N.Y.*

| Parameters Exceeding Standards | | | | |
|---|---|---|---|---|
| Parameter | Date | Value | Standard | State |
| None | | | | |

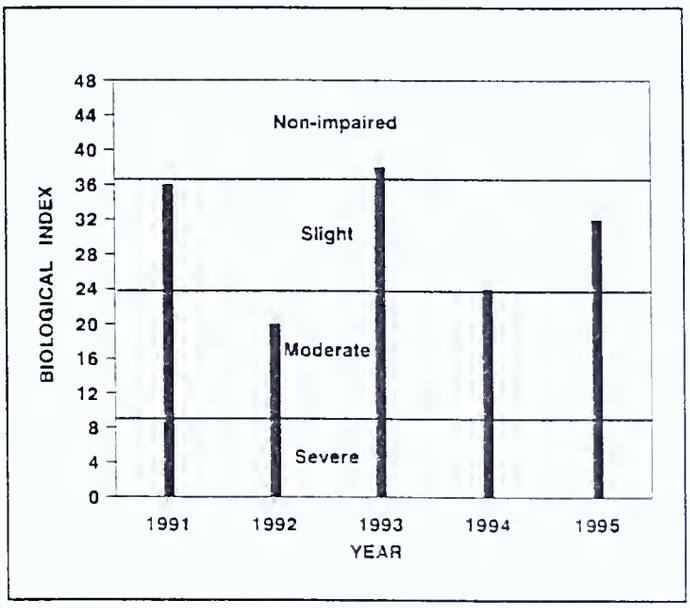
| Date | WQI | Parameters Exceeding 90th Percentile | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 07/26/95 | 20 | TMg | | | | | | | |

**Biological Summary**

Number of taxa: 16
Diversity index: 3.35
RBP score: 32
RBP condition: Slightly impaired




**Water Quality Index**




**Biological Index**

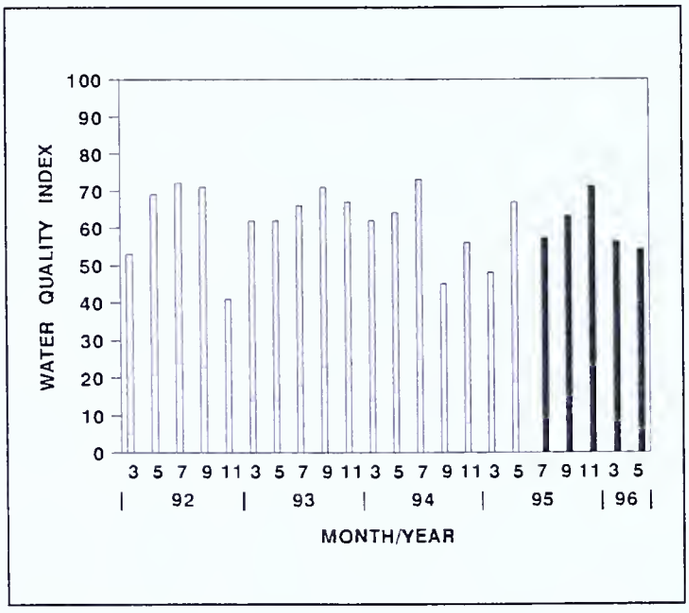
*Table 19. Water Quality Summary Chemung River at Chemung, N.Y.*

| Parameters Exceeding Standards | | | | |
|---|---|---|---|---|
| Parameter | Date | Value | Standard | State |
| pH | 07/26/95 | 9.25 | 6.5 - 8.5 | N.Y. aquatic life |
| pH | 07/26/95 | 9.25 | 6.0 - 9.0 | Pa. aquatic life |
| pH | 09/19/95 | 8.81 | 6.5 - 8.5 | N.Y. aquatic life |
| TFe | 11/08/95 | 409 µg/l | 300 µg/l | N.Y. health (water source) and aquatic |
| TFe | 03/19/96 | 996 µg/l | 300 µg/l | N.Y. health (water source) and aquatic |
| TFe | 05/15/96 | 1,690 µg/l | 300 µg/l | N.Y. health (water source) and aquatic |
| TFe | 05/15/96 | 1,690 µg/l | 1,500 µg/l | Pa. water supply and aquatic life |

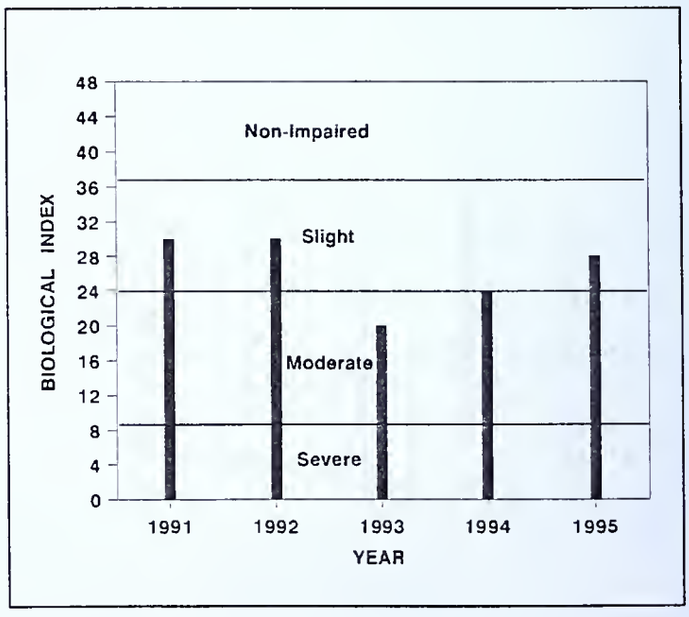
| Date | WQI | Parameters Exceeding 90th Percentile | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 07/26/95 | 57 | DO | COND | BOD | TKN | TP | TOC | TMg | TCl |
| | | TMn | | | | | | | |
| 09/19/95 | 63 | COND | BOD | DS | DNO2 | DP | DPO4 | TCa | TMg |
| | | TCl | TPO4 | | | | | | |
| 11/08/95 | 71 | COND | DS | DNO2 | TCl | TSO4 | DPO4 | | |
| 03/19/96 | 56 | | | | | | | | |
| 05/15/96 | 54 | TSO4 | TURB | | | | | | |

**Biological Summary**

Number of taxa: 17
Diversity index: 3.47
RBP score: 28
RBP condition: Slightly impaired




Water Quality Index




Biological Index

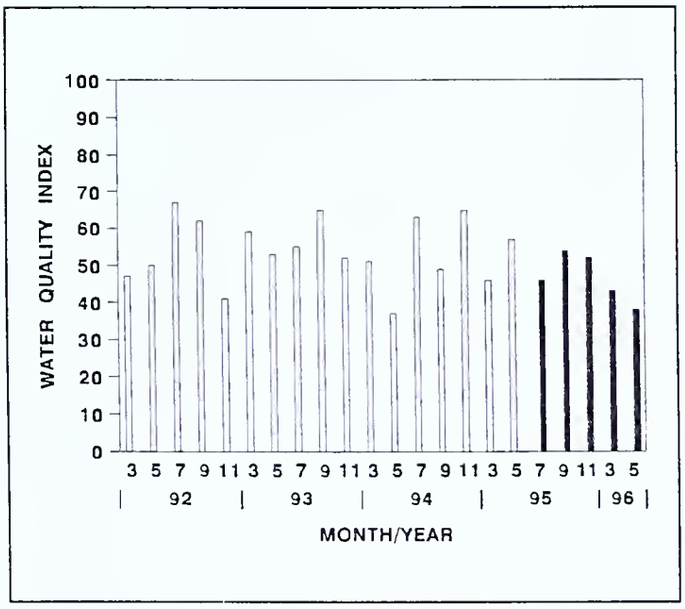
*Table 20. Water Quality Summary Susquehanna River at Sayre, Pa.*

| Parameters Exceeding Standards | | | | |
|---|---|---|---|---|
| Parameter | Date | Value | Standard | State |
| pH | 07/25/95 | 8.55 | 6.5 - 8.5 | N.Y. aquatic life |
| pH | 09/18/95 | 9.17 | 6.5 - 8.5 | N.Y. aquatic life |
| pH | 09/18/95 | 9.17 | 6.0 - 9.0 | Pa. aquatic life |
| TFe | 03/19/96 | 498 µg/l | 300 µg/l | N.Y. health (water source) and aquatic |
| TFe | 05/15/96 | 656 µg/l | 300 µg/l | N.Y. health (water source) and aquatic |

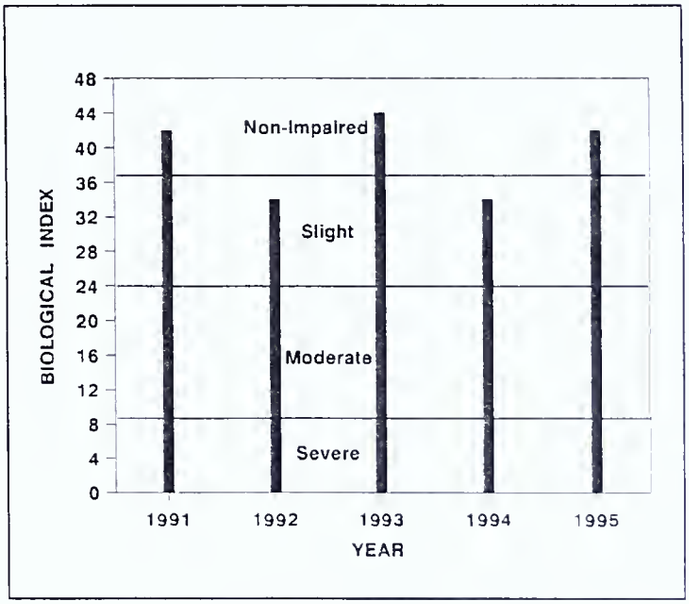
| Date | WQI | Parameters Exceeding 90th Percentile | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 07/25/95 | 46 | | | | | | | | |
| 09/18/95 | 54 | DO | BOD | | | | | | |
| 11/07/95 | 52 | DKN | | | | | | | |
| 03/19/96 | 43 | | | | | | | | |
| 05/15/96 | 38 | | | | | | | | |

**Biological Summary**

Number of taxa: 18
Diversity index: 3.54
RBP score: 42
RBP condition: Non-impaired




**Water Quality Index**




**Biological Index**

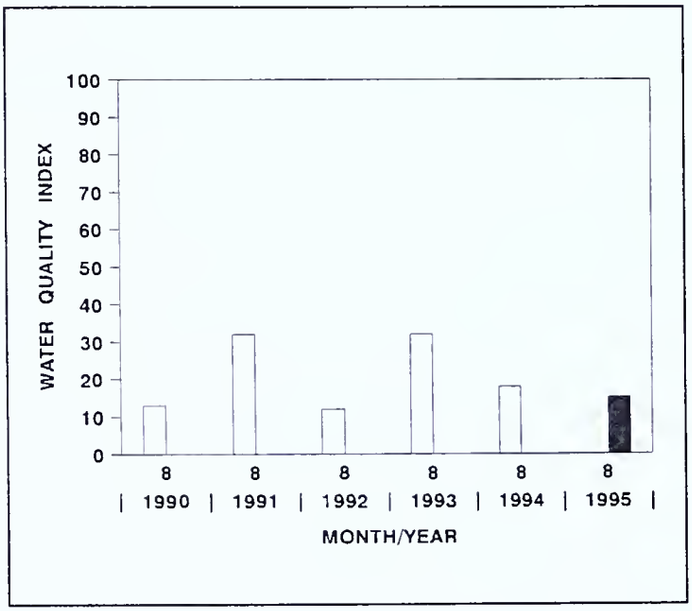
*Table 21. Water Quality Summary South Branch Conewago Creek at Bandanna, Pa.*

| Parameters Exceeding Standards | | | | |
|---|---|---|---|---|
| Parameter | Date | Value | Standard | State |
| None | | | | |

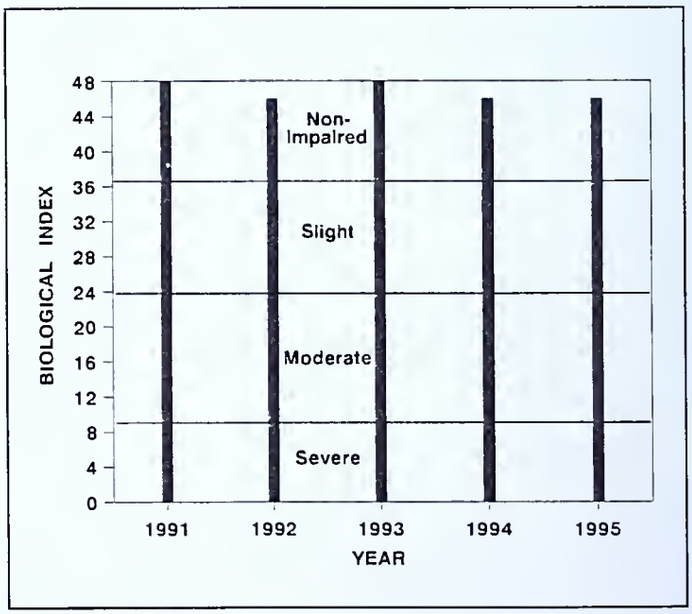
| Date | WQI | Parameters Exceeding 90th Percentile | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 08/01/95 | 15 | | | | | | | | |

**Biological Summary**

Number of taxa: 24
Diversity index: 3.72
RBP score: 46
RBP condition: Reference




Water Quality Index




Biological Index

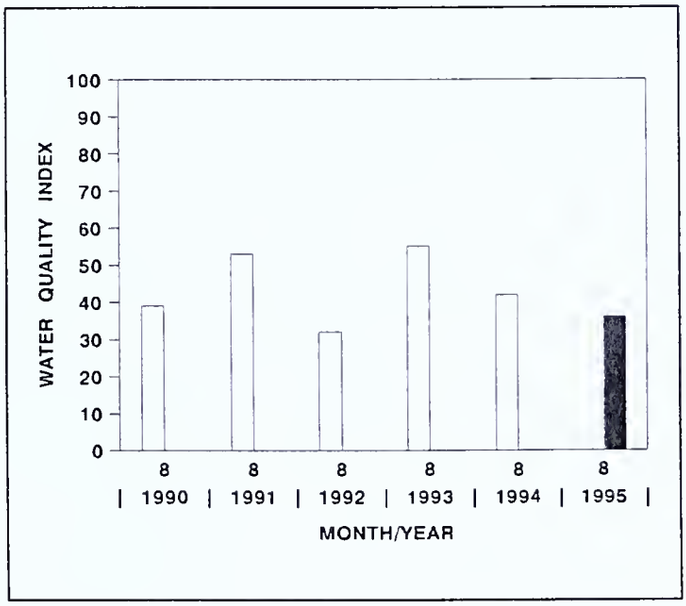
*Table 22. Water Quality Summary Long Arm Creek at Bandanna, Pa.*

| Parameters Exceeding Standards | | | | |
|---|---|---|---|---|
| Parameter | Date | Value | Standard | State |
| None | | | | |

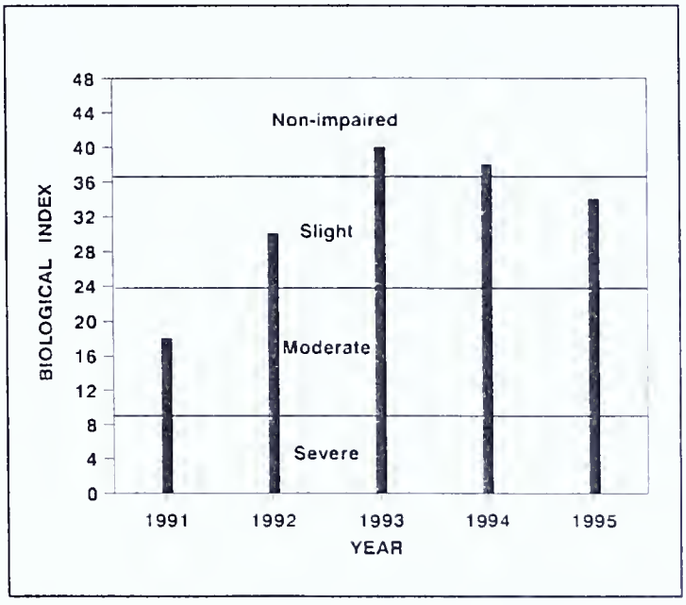
| Date | WQI | Parameters Exceeding 90th Percentile | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 08/01/95 | 36 | | | | | | | | |

**Biological Summary**

Number of taxa: 18
Diversity index: 3.53
RBP score: 34
RBP condition: Slightly impaired




**Water Quality Index**




**Biological Index**

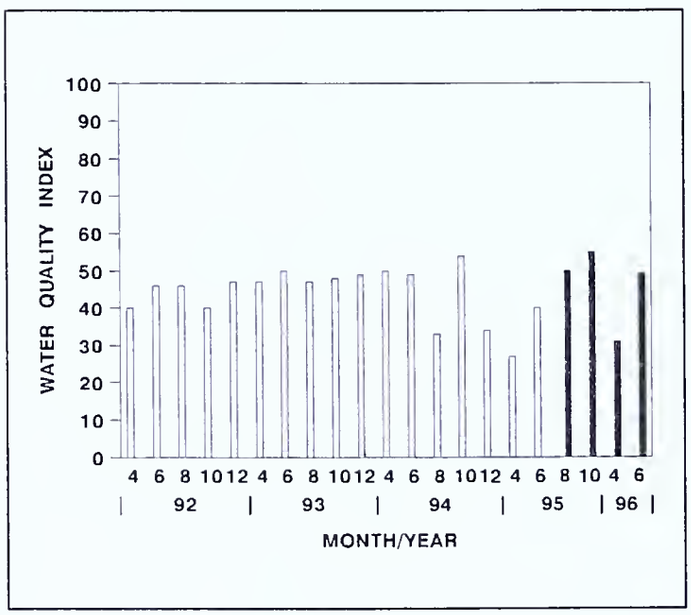
*Table 23. Water Quality Summary Susquehanna River at Marietta, Pa.*

| Parameters Exceeding Standards | | | | |
|---|---|---|---|---|
| Parameter | Date | Value | Standard | State |
| TFe | 10/24/95 | 9,820 µg/l | 1,500 µg/l | Pa. water supply and aquatic life |
| TMn | 10/24/95 | 1,521 µg/l | 1,000 µg/l | Pa. water supply |
| TFe | 04/16/96 | 1,630 µg/l | 1,500 µg/l | Pa. water supply and aquatic life |
| pH | 06/18/96 | 8.70 | 6.5 - 8.5 | Md. aquatic life |

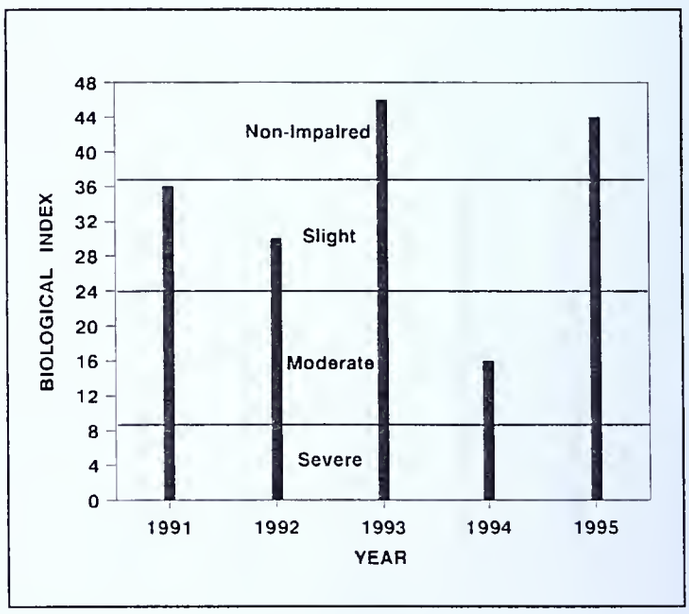
| Date | WQI | Parameters Exceeding 90th Percentile | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 08/03/95 | 50 | DO | COND | TSO4 | DMn | | | | |
| 10/24/95 | 55 | BOD | TP | TOC | TFe | TMn | TAl | TURB | |
| 04/16/96 | 31 | | | | | | | | |
| 06/18/96 | 49 | BOD | DKN | TMg | | | | | |

**Biological Summary**

Number of taxa: 20
Diversity index: 3.71
RBP score: 44
RBP condition: Non-impaired




**Water Quality Index**




**Biological Index**

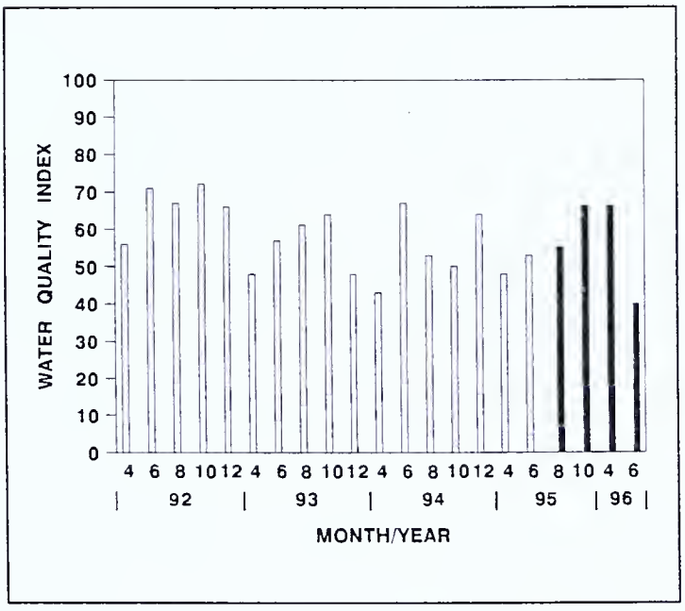
*Table 24. Water Quality Summary Scott Creek at Delta, Pa.*

| Parameters Exceeding Standards | | | | |
|---|---|---|---|---|
| Parameter | Date | Value | Standard | State |
| None | | | | |

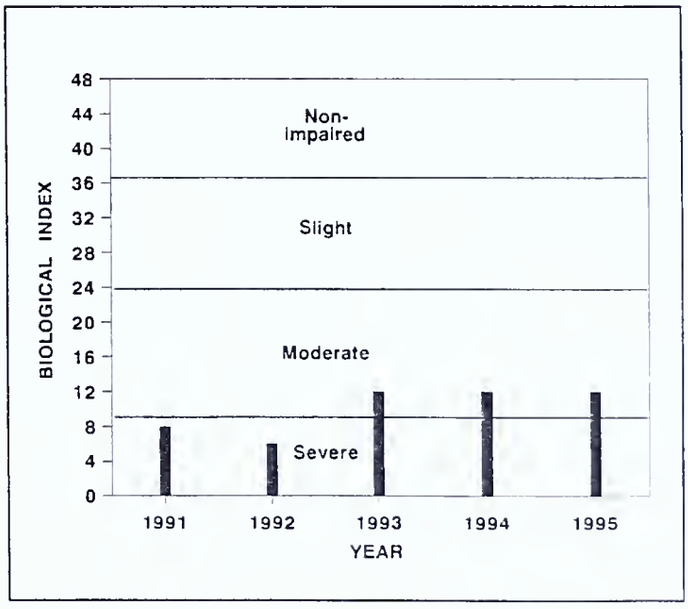
| Date | WQI | Parameters Exceeding 90th Percentile | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 08/02/95 | 55 | DO | DP | | | | | | |
| 10/25/95 | 66 | DNH3 | TNH3 | TMg | TMn | DMn | | | |
| 04/16/96 | 66 | DNH3 | TNH3 | DKN | TKN | DP | DPO4 | TOC | DFe |
| | | TPO4 | | | | | | | |
| 06/17/96 | 40 | | | | | | | | |

**Biological Summary**

Number of taxa: 10
Diversity index: 1.95
RBP score: 12
RBP condition: Moderately impaired




**Water Quality Index**




**Biological Index**

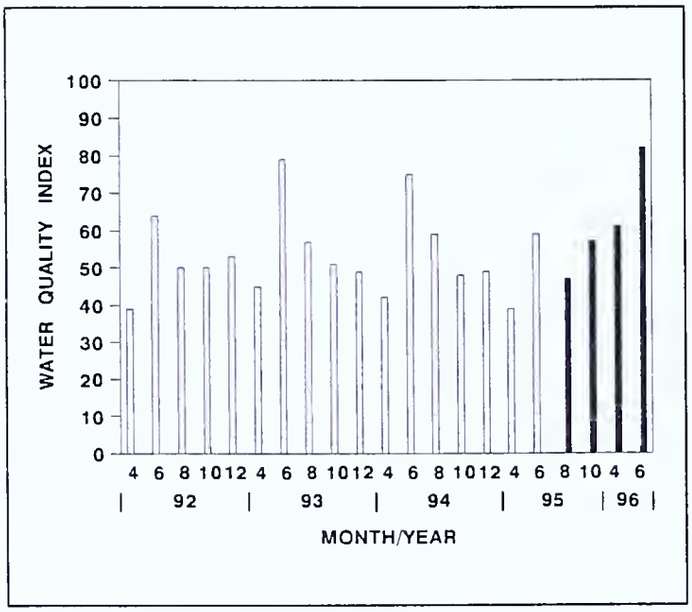
*Table 25. Water Quality Summary Conowingo Creek at Pleasant Grove, Pa.*

| Parameters Exceeding Standards | | | | |
|---|---|---|---|---|
| Parameter | Date | Value | Standard | State |
| TFe | 06/18/96 | 37,800 µg/l | 1,500 µg/l | Pa. water supply and aquatic life |
| DFe | 06/18/96 | 368 µg/l | 300 µg/l | Pa. water supply and aquatic life |

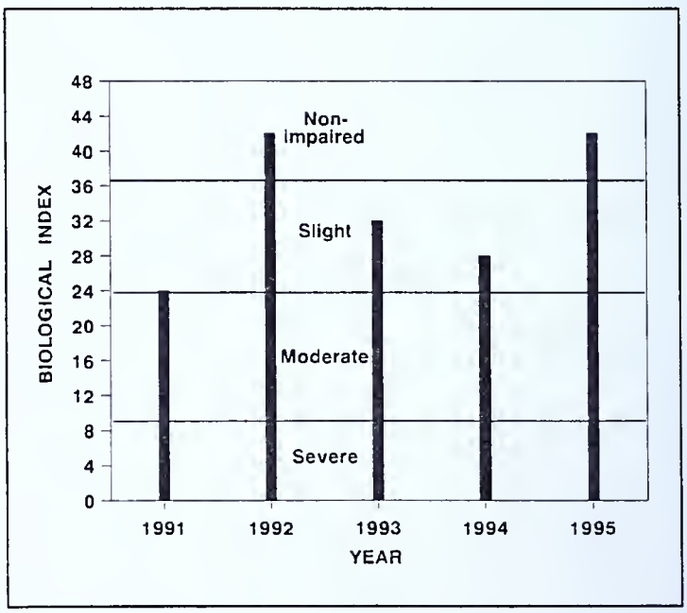
| Date | WQI | Parameters Exceeding 90th Percentile | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 08/03/95 | 47 | DO | TP | | | | | | |
| 10/24/95 | 57 | DNO3 | TNO3 | | | | | | |
| 04/17/96 | 61 | DNO3 | TNO3 | | | | | | |
| 06/18/96 | 82 | BOD | TS | DNO3 | TNO3 | DNO2 | TNO2 | TNO3 | DKN |
| | | TKN | TP | DP | DPO4 | TOC | TMg | TFe | DFe |
| | | TMn | TAl | TPO4 | TURB | | | | |

**Biological Summary**

Number of taxa: 19
Diversity index: 3.43
RBP score: 42
RBP condition: Non-impaired




**Water Quality Index**




**Biological Index**

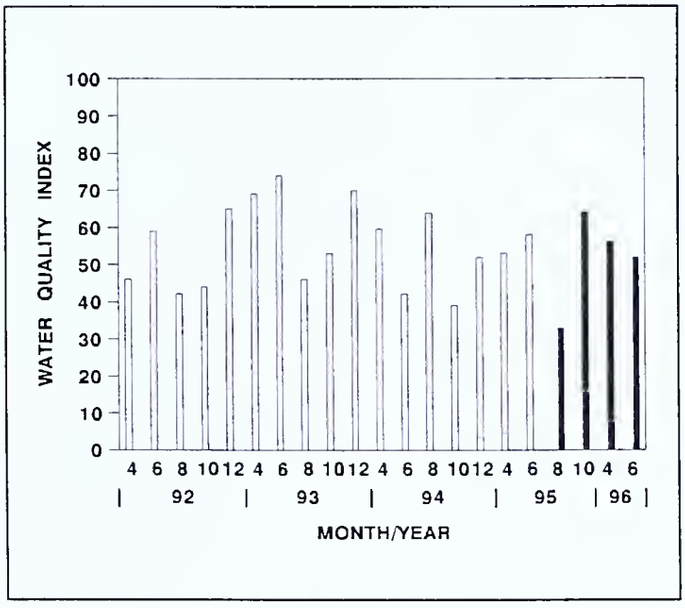
*Table 26. Water Quality Summary Octoraro Creek at Rising Sun, Md.*

| Parameters Exceeding Standards | | | | |
|---|---|---|---|---|
| Parameter | Date | Value | Standard | State |
| None | | | | |

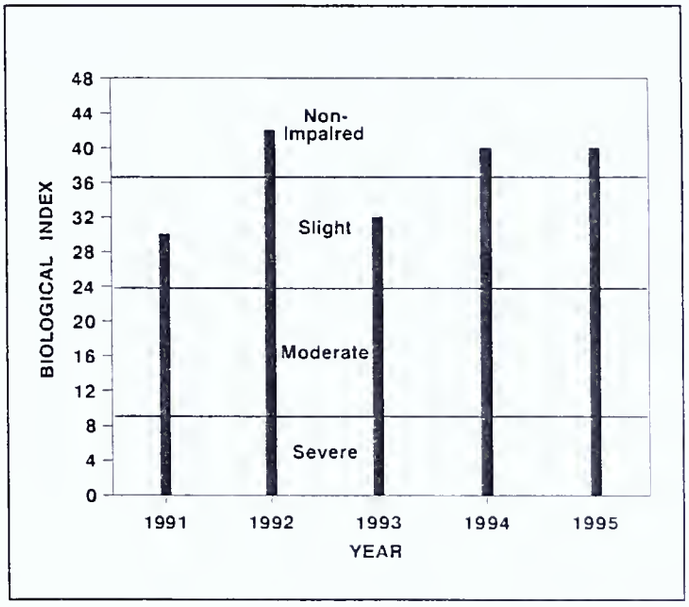
| Date | WQI | Parameters Exceeding 90th Percentile | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 08/03/95 | 33 | | | | | | | | |
| 10/24/95 | 64 | DNO2 | TNO2 | DKN | DP | DPO4 | TPO4 | | |
| 04/17/96 | 56 | BOD | DNO3 | TNO3 | | | | | |
| 06/18/96 | 52 | DNO3 | | | | | | | |

**Biological Summary**

Number of taxa: 21
Diversity index: 3.64
RBP score: 40
RBP condition: Non-impaired




**Water Quality Index**




**Biological Index**

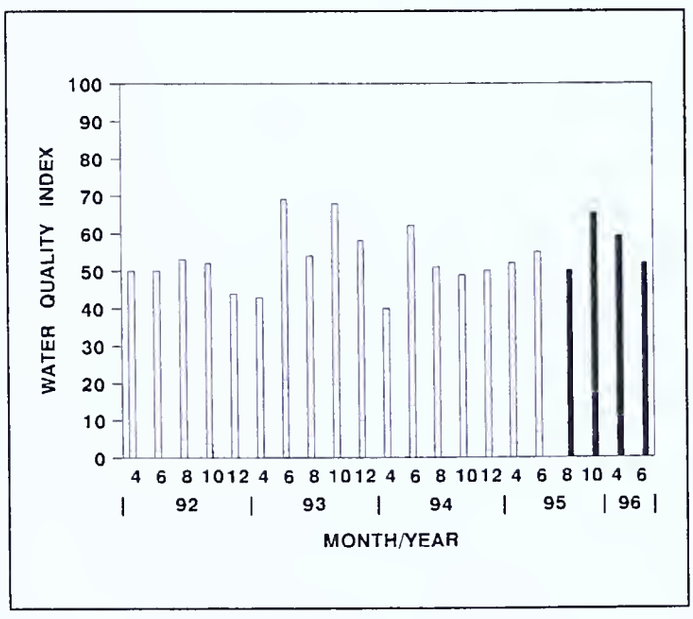
*Table 27. Water Quality Summary Ebaughs Creek at Stewartstown, Pa.*

| Parameters Exceeding Standards | | | | |
|---|---|---|---|---|
| Parameter | Date | Value | Standard | State |
| TFe | 04/16/96 | 2.500 µg/l | 1.500 µg/l | Pa. water supply and aquatic life |

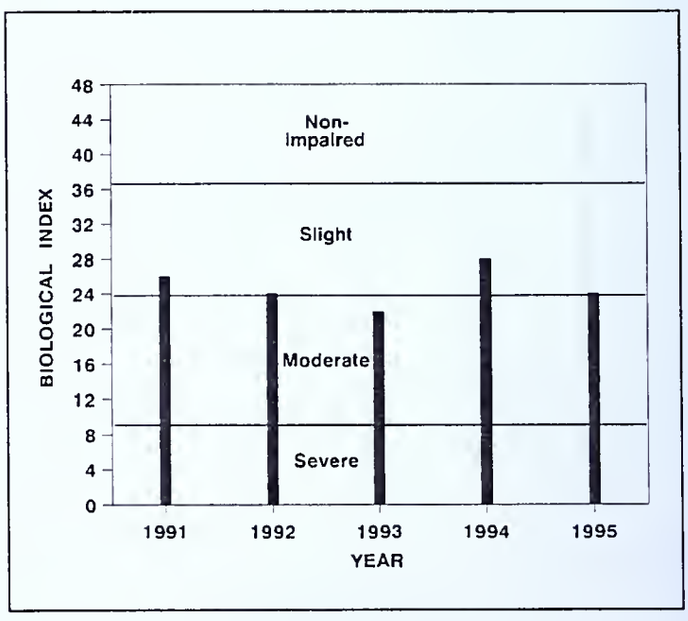
| Date | WQI | Parameters Exceeding 90th Percentile | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 08/02/95 | 50 | TS | DS | TCl | DFe | | | | |
| 10/25/95 | 65 | COND | TS | DS | DNO2 | TNO2 | TCa | TCl | |
| 04/16/96 | 59 | COND | DNH3 | TNH3 | TKN | TCa | TCl | TFe | TAl |
| 06/17/96 | 52 | COND | ALK | TS | DS | TCa | TCl | TSO4 | DFe |
| | | DMn | | | | | | | |

**Biological Summary**

Number of taxa: 15
Diversity index: 2.75
RBP score: 24
RBP condition: Moderately impaired




**Water Quality Index**




**Biological Index**

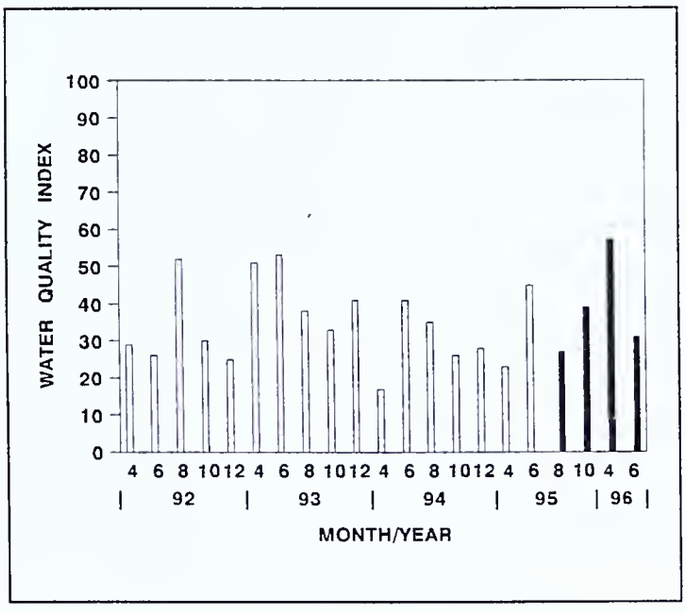
*Table 28. Water Quality Summary Deer Creek at Gorsuch Mills, Md.*

| Parameters Exceeding Standards | | | | |
|---|---|---|---|---|
| Parameter | Date | Value | Standard | State |
| TFe | 04/16/96 | 7,930 µg/l | 1,500 µg/l | Pa. water supply and aquatic life |

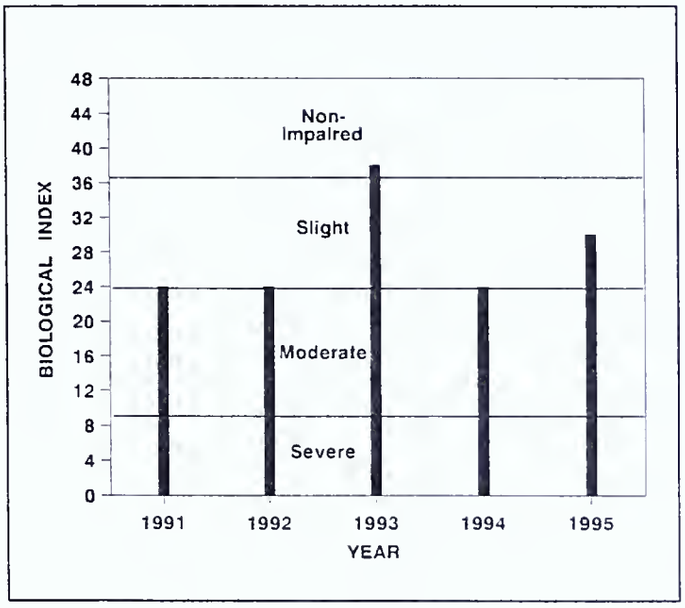
| Date | WQI | Parameters Exceeding 90th Percentile | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 08/02/95 | 27 | | | | | | | | |
| 10/25/95 | 39 | | | | | | | | |
| 04/16/96 | 57 | DS | TKN | TP | TOC | TFe | TMn | TAl | TURB |
| 06/17/96 | 31 | | | | | | | | |

**Biological Summary**

Number of taxa: 16
Diversity index: 3.42
RBP score: 30
RBP condition: Slightly impaired




**Water Quality Index**




**Biological Index**

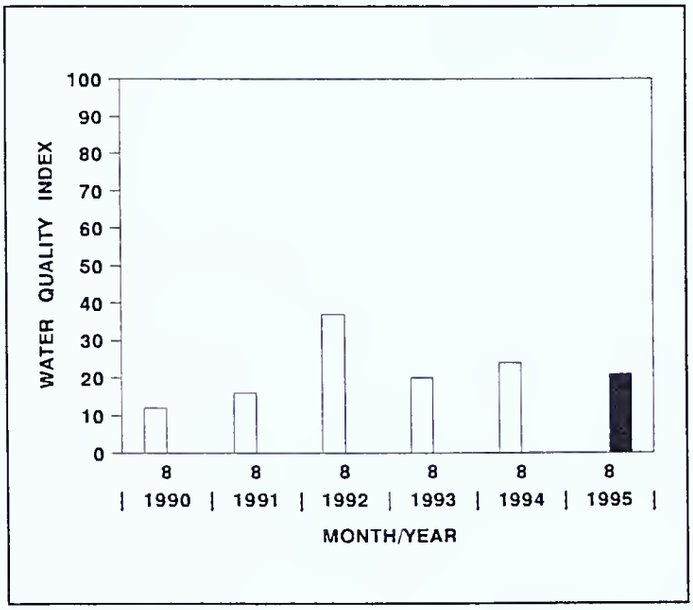
*Table 29. Water Quality Summary Big Branch Deer Creek at Fawn Grove, Pa.*

| Parameters Exceeding Standards | | | | |
|---|---|---|---|---|
| Parameter | Date | Value | Standard | State |
| ALK | 08/02/95 | 18 mg/l | 20 mg/l | Pa. aquatic life |

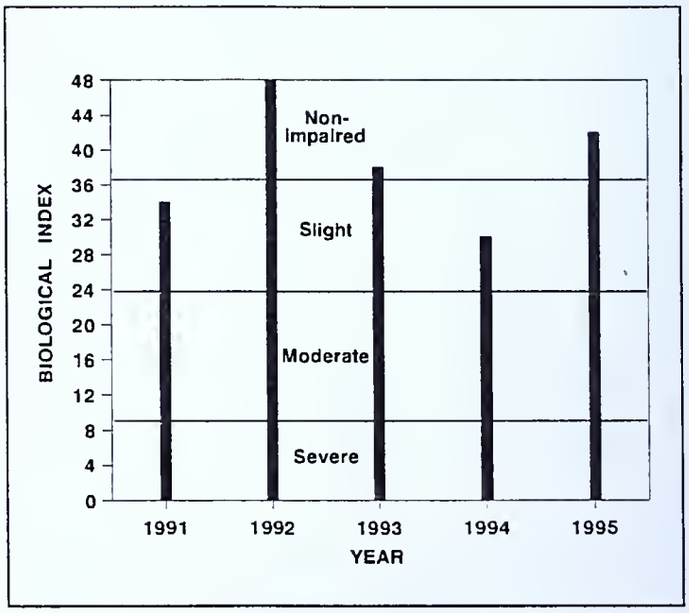
| Date | WQI | Parameters Exceeding 90th Percentile | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 08/02/95 | 21 | ALK | | | | | | | |

**Biological Summary**

Number of taxa: 22
Diversity index: 3.65
RBP score: 42
RBP condition: Non-impaired




**Water Quality Index**




**Biological Index**

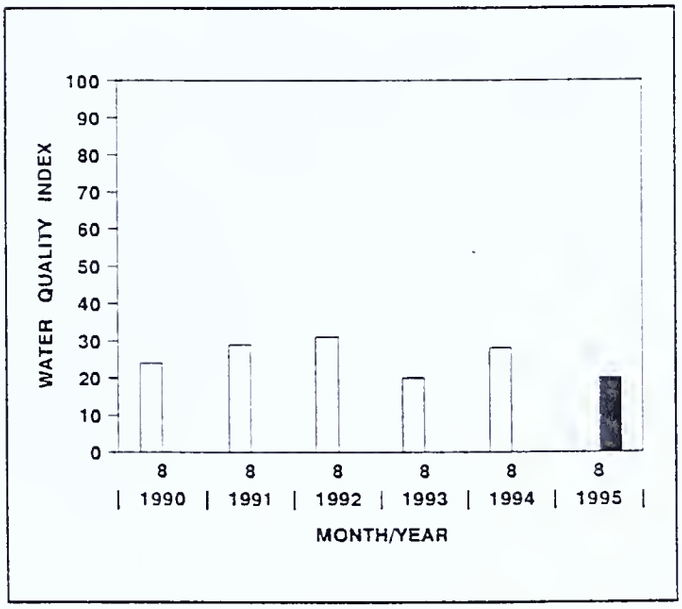
*Table 30. Water Quality Summary Falling Branch Deer Creek at Fawn Grove, Pa.*

| Parameters Exceeding Standards | | | | |
|---|---|---|---|---|
| Parameter | Date | Value | Standard | State |
| ALK | 08/02/95 | 16 mg/l | 20 mg/l | Pa. aquatic life |

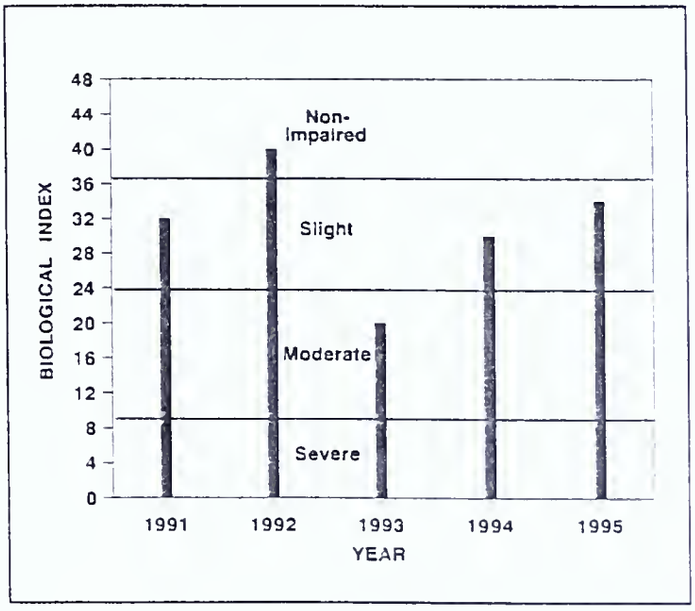
| Date | WQI | Parameters Exceeding 90th Percentile | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 08/02/95 | 20 | ALK | | | | | | | |

**Biological Summary**

Number of taxa: 16
Diversity index: 3.41
RBP score: 34
RBP condition: Slightly impaired




Water Quality Index




Biological Index

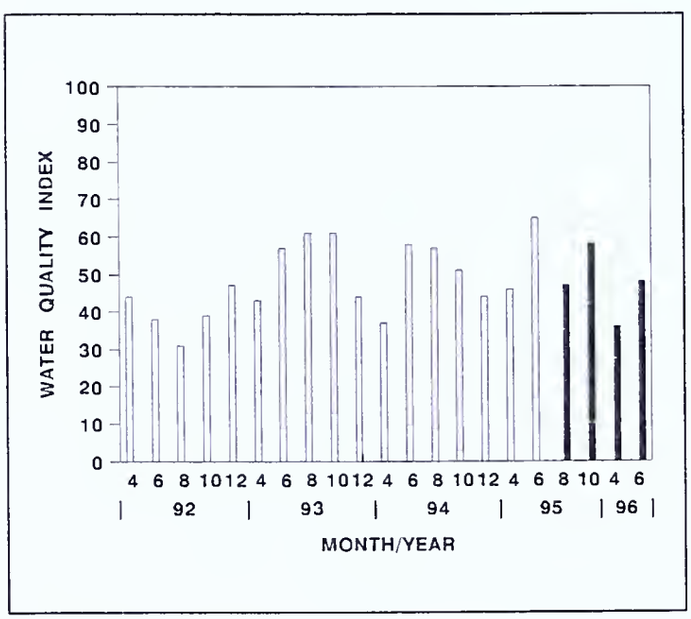
*Table 31. Water Quality Summary Susquehanna River at Conowingo, Md.*

| Parameters Exceeding Standards | | | | |
|---|---|---|---|---|
| Parameter | Date | Value | Standard | State |
| TFe | 04/16/96 | 1.510 µg/l | 1.500 µg/l | Pa. water supply and aquatic life |

| Date | WQI | Parameters Exceeding 90th Percentile | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 08/03/95 | 47 | DO | DNO2 | TNO2 | TSO4 | | | | |
| 10/25/95 | 58 | ALK | TURB | | | | | | |
| 04/16/96 | 36 | DMn | | | | | | | |
| 06/17/96 | 48 | TCa | TSO4 | | | | | | |

**Biological Summary**

Number of taxa: None
Diversity index:
RBP score:
RBP condition:




**Water Quality Index**

## CONCLUSIONS

Of the New York-Pennsylvania border streams sampled, 1995 biological indexes indicate five streams are non-impaired, seven are slightly impaired, and three are moderately impaired. None are severely impaired. The most common sources of water quality degradation in these streams are acid mine drainage and nutrients.

Of the Pennsylvania-Maryland border streams sampled, biological indexes indicate five streams are non-impaired, three are slightly impaired, and two are moderately impaired. None are severely impaired. Excess nutrients are the most common cause of water quality degradation in these streams.

The current and historical data contained in this report provide a database that enables SRBC and others to better manage water quality, water quantity, and biological resources in interstate streams in the Susquehanna River Basin. The data can be used by the SRBC's signatory states to gain a better understanding of water quality in upstream and downstream areas outside their area of jurisdiction. This also can serve as a starting point for more detailed assessments and remediation efforts that may be planned in these streams.

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# Appendix A
# Water Quality Data for Interstate Streams Crossing the New York-Pennsylvania and Pennsylvania-Maryland Borders

*Table A1. Water Quality Data for Interstate Streams Crossing the New York-Pennsylvania Border*

| Station | Date | Time | Discharge | Temper-ature | Conduct-ance | Dissolved Oxygen | Biological Oxygen Demand | pH | Alkalinity | Acidity |
|---|---|---|---|---|---|---|---|---|---|---|
| | yyyymmdd | | cfs | °C | umhos/cm | mg/l | mg/l | | mg/l | mg/l |
| APAL 6.9 | 19950725 | 1100 | 0.303 | 22.6 | 122 | 6.03 | 1.2 | 6.70 | 38 | 6 |
| | | | | | | | | | | |
| BNTY 0.9 | 19950726 | 1020 | 12.03 | 23.0 | 274 | 8.48 | 0.6 | 7.85 | 96 | 2 |
| | | | | | | | | | | |
| CAYT 1.7 | 19950725 | 1510 | 9.137 | 25.4 | 502 | 10.67 | 2.0 | 8.60 | 118 | 0 |
| CAYT 1.7 | 19950918 | 1425 | 17.56 | 18.4 | 598 | 11.19 | 2.9 | 8.30 | 120 | 0 |
| CAYT 1.7 | 19951107 | 1430 | 76.31 | 6.3 | 297 | 10.80 | 1.8 | 7.65 | 80 | 4 |
| CAYT 1.7 | 19960319 | 1405 | 91.46 | 5.6 | 132 | 10.99 | 1.0 | 7.12 | 24 | 4 |
| CAYT 1.7 | 19960515 | 1430 | 102.37 | 11.3 | 138 | 11.87 | 0.9 | 7.40 | 38 | 2 |
| | | | | | | | | | | |
| CHEM 12.0 | 19950726 | 835 | 257.0 | 26.2 | 402 | 15.14 | 6.3 | 9.25 | 94 | 0 |
| CHEM 12.0 | 19950919 | 915 | 180.0 | 18.0 | 412 | 10.35 | 4.5 | 8.81 | 112 | 0 |
| CHEM 12.0 | 19951108 | 845 | 794 | 8.1 | 471 | 10.09 | 2.3 | 7.70 | 76 | 4 |
| CHEM 12.0 | 19960319 | 1510 | 3,570 | 5.7 | 209 | 11.37 | 1.4 | 7.55 | 48 | 2 |
| CHEM 12.0 | 19960515 | 1520 | 12,000 | 11.3 | 165 | 11.18 | 1.2 | 7.35 | 46 | 4 |
| | | | | | | | | | | |
| CHOC 9.1 | 19950725 | 950 | 0.594 | 21.9 | 121 | 7.33 | 0.4 | 7.05 | 28 | 4 |
| | | | | | | | | | | |
| COWN 2.2 | 19950727 | 830 | 23 | 26.1 | 204 | 7.57 | 0.3 | 8.30 | 58 | 0 |
| COWN 2.2 | 19950919 | 1305 | 17 | 16.6 | 179 | 8.14 | 3.8 | 7.75 | 58 | 2 |
| COWN 2.2 | 19951108 | 1145 | 85 | 8.5 | 210 | 7.47 | 1.9 | 7.19 | 46 | 2 |
| COWN 2.2 | 19960320 | 1105 | 2,930 | 2.7 | 132 | 12.63 | 1.0 | 6.95 | 28 | 2 |
| COWN 2.2 | 19960516 | 1045 | 560 | 9.4 | 98 | 11.80 | 1.2 | 6.95 | 26 | 4 |
| | | | | | | | | | | |
| SEEL 10.3 | 19950726 | 1335 | 3.71 | 21.7 | 309 | 9.73 | 0.3 | 7.80 | 116 | 2 |
| | | | | | | | | | | |
| SNAK 2.3 | 19950724 | 1135 | 1.805 | 24.8 | 112 | 9.21 | 0.3 | 7.95 | 24 | 2 |
| | | | | | | | | | | |
| SOUT 2.8 | 19950726 | 1200 | 6.027 | 24.2 | 208 | 9.32 | 1.2 | 7.50 | 64 | 4 |
| | | | | | | | | | | |
| SUSQ 289.1 | 19950725 | 1345 | 757 | 26.2 | 293 | 9.83 | 2.0 | 8.55 | 84 | 0 |
| SUSQ 289.1 | 19950918 | 1350 | 428 | 18.3 | 300 | 13.65 | 7.1 | 9.17 | 76 | 0 |
| SUSQ 289.1 | 19951107 | 1355 | 4,180 | 6.7 | 208 | 9.98 | 1.8 | 7.29 | 56 | 6 |
| SUSQ 289.1 | 19960319 | 1320 | 11,800 | 5.0 | 170 | 11.75 | 2.8 | 7.40 | 40 | 2 |
| SUSQ 289.1 | 19960515 | 1345 | 32,300 | 10.5 | 126 | 11.94 | 1.8 | 7.25 | 38 | 4 |

*Table A1. Water Quality Data for Interstate Streams Crossing the New York-Pennsylvania Border—Continued*

| Station | Date | Time | Solids Dissolved | Solids Total | Ammonia Dissolved | Ammonia Total | Nitrite Dissolved | Nitrite Total | Nitrate Dissolved | Nitrate Total |
|---|---|---|---|---|---|---|---|---|---|---|
| | yyyymmdd | | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l |
| APAL 6.9 | 19950725 | 1100 | 70 | 92 | < 0.02 | 0.03 | 0.004 | 0.004 | < 0.04 | < 0.04 |
| | | | | | | | | | | |
| BNTY 0.9 | 19950726 | 1020 | 104 | 146 | < 0.02 | < 0.02 | < 0.004 | 0.004 | 0.15 | 0.15 |
| | | | | | | | | | | |
| CAYT 1.7 | 19950725 | 1510 | 298 | 308 | 0.05 | 0.07 | 0.018 | 0.020 | 0.97 | 0.97 |
| CAYT 1.7 | 19950918 | 1425 | 472 | 472 | < 0.02 | 0.10 | 0.010 | 0.010 | 0.98 | 0.98 |
| CAYT 1.7 | 19951107 | 1430 | 194 | 196 | < 0.02 | < 0.02 | 0.006 | 0.006 | 0.64 | 0.64 |
| CAYT 1.7 | 19960319 | 1405 | 88 | 100 | < 0.02 | < 0.02 | < 0.004 | 0.004 | 0.33 | 0.35 |
| CAYT 1.7 | 19960515 | 1430 | 88 | 114 | < 0.02 | 0.03 | < 0.004 | 0.004 | 0.33 | 0.35 |
| | | | | | | | | | | |
| CHEM 12.0 | 19950726 | 835 | 266 | 272 | < 0.02 | < 0.02 | < 0.004 | 0.008 | < 0.04 | < 0.04 |
| CHEM 12.0 | 19950919 | 915 | 306 | 306 | < 0.02 | 0.09 | 0.016 | 0.016 | 0.64 | 0.64 |
| CHEM 12.0 | 19951108 | 845 | 294 | 298 | 0.07 | 0.07 | 0.018 | 0.024 | 0.91 | 0.92 |
| CHEM 12.0 | 19960319 | 1510 | 90 | 116 | 0.06 | 0.06 | 0.006 | 0.012 | 0.85 | 0.85 |
| CHEM 12.0 | 19960515 | 1520 | 140 | 238 | < 0.02 | 0.07 | 0.004 | 0.026 | 0.75 | 0.75 |
| | | | | | | | | | | |
| CHOC 9.1 | 19950725 | 950 | 68 | 76 | < 0.02 | < 0.02 | < 0.004 | 0.004 | 0.07 | 0.07 |
| | | | | | | | | | | |
| COWN 2.2 | 19950727 | 830 | 136 | 140 | < 0.02 | < 0.02 | 0.004 | 0.004 | 0.11 | 0.11 |
| COWN 2.2 | 19950919 | 1305 | 142 | 142 | < 0.02 | 0.03 | 0.004 | 0.006 | 0.06 | 0.06 |
| COWN 2.2 | 19951108 | 1145 | 150 | 168 | 0.10 | 0.11 | 0.016 | 0.024 | 0.49 | 0.49 |
| COWN 2.2 | 19960320 | 1105 | 84 | 104 | 0.12 | 0.13 | 0.014 | 0.020 | 0.98 | 0.98 |
| COWN 2.2 | 19960516 | 1045 | 128 | 346 | < 0.02 | 0.19 | 0.010 | 0.056 | 0.61 | 0.59 |
| | | | | | | | | | | |
| SEEL 10.3 | 19950726 | 1335 | 174 | 178 | < 0.02 | < 0.02 | < 0.004 | < 0.004 | 0.18 | 0.18 |
| | | | | | | | | | | |
| SNAK 2.3 | 19950724 | 1135 | 74 | 72 | < 0.02 | 0.03 | < 0.004 | 0.004 | 0.04 | 0.09 |
| | | | | | | | | | | |
| SOUT 2.8 | 19950726 | 1200 | 146 | 146 | < 0.02 | < 0.02 | < 0.004 | 0.004 | 0.04 | 0.09 |
| | | | | | | | | | | |
| SUSQ 289.1 | 19950725 | 1345 | 182 | 182 | < 0.02 | < 0.02 | 0.004 | 0.006 | < 0.04 | < 0.04 |
| SUSQ 289.1 | 19950918 | 1350 | 244 | 244 | < 0.02 | 0.02 | 0.006 | 0.008 | < 0.04 | < 0.04 |
| SUSQ 289.1 | 19951107 | 1355 | 132 | 144 | 0.08 | 0.08 | 0.010 | 0.012 | 0.67 | 0.67 |
| SUSQ 289.1 | 19960319 | 1320 | 68 | 84 | 0.04 | 0.04 | 0.006 | 0.008 | 0.94 | 0.98 |
| SUSQ 289.1 | 19960515 | 1345 | 80 | 134 | < 0.02 | 0.05 | 0.004 | 0.008 | 0.62 | 0.62 |

*Table A1. Water Quality Data for Interstate Streams Crossing the New York-Pennsylvania Border—Continued*

| Station | Date | Time | Kjeldahl Nitrogen Dissolved | Kjeldahl Nitrogen Total | Phosphorus Dissolved | Phosphorus Total | Ortho Phosphorus Dissolved | Ortho Phosphorus Total |
|---|---|---|---|---|---|---|---|---|
| | yyyymmdd | | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l |
| APAL 6.9 | 19950725 | 1100 | < 0.20 | 0.37 | 0.028 | 0.07 | < 0.002 | 0.009 |
| | | | | | | | | |
| BNTY 0.9 | 19950726 | 1020 | < 0.20 | < 0.20 | 0.018 | 0.02 | < 0.002 | < 0.002 |
| | | | | | | | | |
| CAYT 1.7 | 19950725 | 1510 | 0.26 | 0.58 | 0.361 | 0.40 | 0.342 | 0.361 |
| CAYT 1.7 | 19950918 | 1425 | 0.26 | 0.81 | 0.090 | 0.12 | 0.031 | 0.076 |
| CAYT 1.7 | 19951107 | 1430 | 0.24 | 0.29 | 0.020 | 0.02 | < 0.002 | 0.003 |
| CAYT 1.7 | 19960319 | 1405 | < 0.20 | < 0.20 | 0.008 | 0.02 | < 0.002 | 0.007 |
| CAYT 1.7 | 19960515 | 1430 | < 0.20 | 0.32 | 0.009 | 0.02 | NA | NA |
| | | | | | | | | |
| CHEM 12.0 | 19950726 | 835 | 0.27 | 1.11 | 0.038 | 0.21 | 0.005 | 0.025 |
| CHEM 12.0 | 19950919 | 915 | < 0.20 | 0.66 | 0.087 | 0.15 | 0.038 | 0.079 |
| CHEM 12.0 | 19951108 | 845 | 0.42 | 0.66 | 0.058 | 0.07 | 0.034 | 0.043 |
| CHEM 12.0 | 19960319 | 1510 | < 0.20 | 0.23 | 0.028 | 0.06 | 0.006 | 0.033 |
| CHEM 12.0 | 19960515 | 1520 | 0.32 | 0.52 | 0.013 | 0.08 | NA | NA |
| | | | | | | | | |
| CHOC 9.1 | 19950725 | 950 | < 0.20 | 0.22 | 0.023 | 0.04 | < 0.002 | < 0.002 |
| | | | | | | | | |
| COWN 2.2 | 19950727 | 830 | < 0.20 | < 0.20 | 0.016 | 0.03 | < 0.002 | < 0.002 |
| COWN 2.2 | 19950919 | 1305 | < 0.20 | 0.24 | 0.019 | 0.05 | < 0.002 | 0.004 |
| COWN 2.2 | 19951108 | 1145 | 0.47 | 0.59 | 0.030 | 0.05 | 0.002 | 0.028 |
| COWN 2.2 | 19960320 | 1105 | 0.24 | 0.24 | 0.037 | 0.09 | 0.017 | 0.080 |
| COWN 2.2 | 19960516 | 1045 | 0.55 | 0.97 | 0.018 | 0.18 | NA | NA |
| | | | | | | | | |
| SEEL 10.3 | 19950726 | 1335 | < 0.20 | < 0.20 | 0.017 | 0.03 | < 0.002 | < 0.002 |
| | | | | | | | | |
| SNAK 2.3 | 19950724 | 1135 | < 0.20 | < 0.20 | 0.031 | 0.04 | 0.005 | 0.007 |
| | | | | | | | | |
| SOUT 2.8 | 19950726 | 1200 | < 0.20 | 0.27 | 0.035 | 0.07 | 0.004 | 0.012 |
| | | | | | | | | |
| SUSQ 289.1 | 19950725 | 1345 | < 0.20 | 0.54 | 0.058 | 0.10 | 0.029 | 0.033 |
| SUSQ 289.1 | 19950918 | 1350 | < 0.20 | 0.70 | 0.035 | 0.11 | < 0.002 | 0.011 |
| SUSQ 289.1 | 19951107 | 1355 | 0.48 | 0.55 | 0.034 | 0.04 | 0.014 | 0.014 |
| SUSQ 289.1 | 19960319 | 1320 | < 0.20 | < 0.20 | 0.017 | 0.04 | 0.002 | 0.014 |
| SUSQ 289.1 | 19960515 | 1345 | 0.30 | 0.39 | 0.010 | 0.04 | NA | NA |

*Table A1. Water Quality Data for Interstate Streams Crossing the New York-Pennsylvania Border—Continued*

| Station | Date | Time | Organic Carbon, Total | Calcium | Magnesium | Chloride | Sulfate | Turbidity |
|---|---|---|---|---|---|---|---|---|
| | yyyymmdd | | mg/l | mg/l | mg/l | mg/l | mg/l | NTU |
| APAL 6.9 | 19950725 | 1100 | 3.5 | 10.90 | 3.37 | 6 | 18 | 6.6 |
| | | | | | | | | |
| BNTY 0.9 | 19950726 | 1020 | 1.9 | 40.90 | 7.90 | 12 | 16 | < 1.0 |
| | | | | | | | | |
| CAYT 1.7 | 19950725 | 1510 | 3.4 | 41.20 | 7.89 | 53 | 35 | 6.8 |
| CAYT 1.7 | 19950918 | 1425 | 3.7 | 54.30 | 9.12 | 92 | 48 | < 1.0 |
| CAYT 1.7 | 19951107 | 1430 | 2.1 | 32.50 | 6.14 | 24 | 25 | 5.6 |
| CAYT 1.7 | 19960319 | 1405 | 2.2 | 14.90 | 3.02 | 10 | 16 | < 1.0 |
| CAYT 1.7 | 19960515 | 1430 | 2.7 | 15.20 | 3.03 | 10 | 36 | 6.7 |
| | | | | | | | | |
| CHEM 12.0 | 19950726 | 835 | 5.2 | 40.50 | 11.30 | 50 | 29 | < 1.0 |
| CHEM 12.0 | 19950919 | 915 | 3.6 | 44.80 | 9.97 | 56 | 35 | 4.2 |
| CHEM 12.0 | 19951108 | 845 | 3.3 | 35.40 | 7.55 | 70 | 50 | 9.8 |
| CHEM 12.0 | 19960319 | 1510 | 2.7 | 23.20 | 4.62 | 19 | 35 | < 1.0 |
| CHEM 12.0 | 19960515 | 1520 | 4.2 | 20.60 | 3.95 | 12 | 48 | 134.4 |
| | | | | | | | | |
| CHOC 9.1 | 19950725 | 950 | 2.4 | 9.71 | 3.13 | 9 | 17 | < 1.0 |
| | | | | | | | | |
| COWN 2.2 | 19950727 | 830 | 2.9 | 20.90 | 4.27 | 12 | 19 | 1.4 |
| COWN 2.2 | 19950919 | 1305 | 3.9 | 23.00 | 4.66 | 13 | < 10 | 4.2 |
| COWN 2.2 | 19951108 | 1145 | 4.7 | 23.30 | 4.67 | 14 | 23 | 30.0 |
| COWN 2.2 | 19960320 | 1105 | 3.8 | 18.30 | 3.43 | 9 | 27 | 52.0 |
| COWN 2.2 | 19960516 | 1045 | 5.5 | 12.60 | 4.59 | 8 | 37 | 317.5 |
| | | | | | | | | |
| SEEL 10.3 | 19950726 | 1335 | 1.5 | 47.20 | 7.08 | 10 | 26 | < 1.0 |
| | | | | | | | | |
| SNAK 2.3 | 19950724 | 1135 | 1.9 | 11.20 | 3.19 | 8 | 26 | 1.6 |
| | | | | | | | | |
| SOUT 2.8 | 19950726 | 1200 | 5.8 | 22.10 | 4.38 | 15 | < 10 | 5.8 |
| | | | | | | | | |
| SUSQ 289.1 | 19950725 | 1345 | 3.9 | 32.20 | 5.47 | 24 | 22 | 3.6 |
| SUSQ 289.1 | 19950918 | 1350 | 4.5 | 30.70 | 7.07 | 43 | 34 | 6.2 |
| SUSQ 289.1 | 19951107 | 1355 | 3.1 | 23.90 | 3.90 | 15 | 23 | 3.0 |
| SUSQ 289.1 | 19960319 | 1320 | 2.6 | 20.50 | 3.09 | 16 | 16 | 8.2 |
| SUSQ 289.1 | 19960515 | 1345 | 3.5 | 15.60 | 2.27 | 8 | 25 | 22.0 |

*Table A1. Water Quality Data for Interstate Streams Crossing the New York-Pennsylvania Border—Continued*

| Station | Date | Time | Iron, Dissolved | Iron, Total | Manganese, Dissolved | Manganese, Total | Aluminum, Dissolved | Aluminum, Total |
|---|---|---|---|---|---|---|---|---|
| | yyyymmdd | | µg/l | µg/l | µg/l | µg/l | µg/l | µg/l |
| APAL 6.9 | 19950725 | 1100 | 220 | 834 | 353 | 463 | < 135 | 250 |
| | | | | | | | | |
| BNTY 0.9 | 19950726 | 1020 | < 10 | 29 | < 10 | < 10 | < 135 | < 135 |
| | | | | | | | | |
| CAYT 1.7 | 19950725 | 1510 | 44 | 224 | 13 | 70 | < 135 | 224 |
| CAYT 1.7 | 19950918 | 1425 | 38 | 77 | 11 | 13 | < 135 | < 135 |
| CAYT 1.7 | 19951107 | 1430 | 60 | 133 | < 10 | < 10 | < 135 | < 135 |
| CAYT 1.7 | 19960319 | 1405 | 57 | 318 | < 10 | 12 | < 135 | 221 |
| CAYT 1.7 | 19960515 | 1430 | 58 | 459 | < 10 | 22 | < 135 | 304 |
| | | | | | | | | |
| CHEM 12.0 | 19950726 | 835 | 34 | 259 | < 10 | 247 | < 135 | 220 |
| CHEM 12.0 | 19950919 | 915 | 24 | 177 | < 10 | 69 | < 135 | < 135 |
| CHEM 12.0 | 19951108 | 845 | 61 | 409 | 19 | 37 | < 135 | 248 |
| CHEM 12.0 | 19960319 | 1510 | 66 | 996 | 76 | 96 | < 135 | 941 |
| CHEM 12.0 | 19960515 | 1520 | 52 | 1690 | 25 | 99 | < 135 | 1520 |
| | | | | | | | | |
| CHOC 9.1 | 19950725 | 950 | 125 | 282 | 71 | 83 | < 135 | < 135 |
| | | | | | | | | |
| COWN 2.2 | 19950727 | 830 | < 10 | 41 | 18 | 59 | < 135 | < 135 |
| COWN 2.2 | 19950919 | 1305 | 55 | 169 | 98 | 136 | < 135 | < 135 |
| COWN 2.2 | 19951108 | 1145 | 87 | 1,280 | 188 | 239 | < 135 | 770 |
| COWN 2.2 | 19960320 | 1105 | 87 | 2,810 | 26 | 80 | < 135 | 2,370 |
| COWN 2.2 | 19960516 | 1045 | 174 | 12,000 | 12 | 214 | < 135 | 16,000 |
| | | | | | | | | |
| SEEL 10.3 | 19950726 | 1335 | 11 | 11 | < 10 | < 10 | < 135 | < 135 |
| | | | | | | | | |
| SNAK 2.3 | 19950724 | 1135 | 39 | 145 | 12 | 15 | < 135 | < 135 |
| | | | | | | | | |
| SOUT 2.8 | 19950726 | 1200 | 61 | 402 | 72 | 157 | < 135 | < 135 |
| | | | | | | | | |
| SUSQ 289.1 | 19950725 | 1345 | 30 | 98 | 15 | 74 | < 135 | < 135 |
| SUSQ 289.1 | 19950918 | 1350 | 72 | 242 | < 10 | 69 | < 135 | 157 |
| SUSQ 289.1 | 19951107 | 1355 | 49 | 224 | 11 | 20 | < 135 | < 135 |
| SUSQ 289.1 | 19960319 | 1320 | 47 | 498 | 15 | 26 | < 135 | 315 |
| SUSQ 289.1 | 19960515 | 1345 | 30 | 656 | 12 | 47 | < 135 | 448 |

*Table A1. Water Quality Data for Interstate Streams Crossing the New York-Pennsylvania Border—Continued*

| Station | Date | Time | Discharge | Temper-ature | Specific Conduct-ance | Dissolved Oxygen | Biological Oxygen Demand | pH | Alkalinity | Acidity |
|---|---|---|---|---|---|---|---|---|---|---|
| | yyyymmdd | | cfs | °C | umhos/cm | mg/l | mg/l | | mg/l | mg/l |
| SUSQ 340.0 | 19950724 | 1257 | 365 | 26.7 | 171 | 10.23 | 0.4 | 8.55 | 48 | 0 |
| SUSQ 340.0 | 19950918 | 1130 | 237 | 18.0 | 188 | 8.72 | 3.1 | 8.60 | 68 | 0 |
| SUSQ 340.0 | 19951107 | 1130 | 1,930 | 6.2 | 152 | 10.30 | 2.3 | 7.45 | 40 | 4 |
| SUSQ 340.0 | 19960319 | 1050 | 4,820 | 4.8 | 130 | 11.56 | 2.8 | 7.60 | 38 | 2 |
| SUSQ 340.0 | 19960515 | 1115 | 14,500 | 10.0 | 109 | 11.54 | 1.2 | 7.05 | 36 | 4 |
| | | | | | | | | | | |
| SUSQ 365.0 | 19950724 | 1510 | 270 | 25.0 | 192 | 9.10 | 0.4 | 7.95 | 58 | 2 |
| SUSQ 365.0 | 19950918 | 1235 | 261 | 17.5 | 194 | 9.29 | 2.8 | 8.15 | 68 | 2 |
| SUSQ 365.0 | 19951107 | 1240 | 1,660 | 5.7 | 172 | 10.87 | 2.0 | 7.40 | 44 | 4 |
| SUSQ 365.0 | 19960319 | 1205 | 4,210 | 4.9 | 149 | 11.92 | 3.2 | 7.60 | 40 | 2 |
| SUSQ 365.0 | 19960515 | 1225 | 12,400 | 9.5 | 116 | 12.26 | 0.9 | 7.20 | 34 | 4 |
| | | | | | | | | | | |
| TIOG 10.8 | 19950726 | 1455 | 96 | 26.4 | 228 | 8.48 | 0.6 | 7.70 | 38 | 2 |
| TIOG 10.8 | 19950919 | 1105 | 76 | 14.6 | 207 | 8.84 | 3.2 | 7.55 | 98 | 8 |
| TIOG 10.8 | 19951108 | 1015 | 359 | 7.2 | 190 | 7.46 | 2.1 | 7.32 | 32 | 4 |
| TIOG 10.8 | 19960320 | 905 | 7,820 | 2.8 | 121 | 13.21 | 1.0 | 7.00 | 26 | 2 |
| TIOG 10.8 | 19960516 | 830 | 2,300 | 9.8 | 110 | 11.51 | 0.8 | 7.10 | 24 | 4 |
| | | | | | | | | | | |
| TRUP 4.5 | 19950727 | 1005 | 9.38 | 27.5 | 326 | 8.54 | 0.6 | 8.75 | 104 | 0 |
| TRUP 4.5 | 19950919 | 1425 | 7.21 | 14.0 | 305 | 10.63 | 2.7 | 8.31 | 112 | 0 |
| TRUP 4.5 | 19951108 | 1250 | 10.06 | 4.5 | 236 | 9.01 | 1.7 | 8.15 | 60 | 2 |
| TRUP 4.5 | 19960320 | 1330 | 7.26 | 2.0 | 111 | 11.89 | 1.0 | 7.05 | 36 | 4 |
| TRUP 4.5 | 19960516 | 1205 | 8.41 | 8.8 | 131 | 11.83 | 0.8 | 7.15 | 36 | 4 |
| | | | | | | | | | | |
| WAPP 2.6 | 19950725 | 1240 | 1.04 | 23.2 | 158 | 8.87 | 0.4 | 7.15 | 38 | 4 |

*Table A1. Water Quality Data for Interstate Streams Crossing the New York-Pennsylvania Border—Continued*

| Station | Date | Time | Solids, Dissolved | Solids, Total | Ammonia, Dissolved | Ammonia, Total | Nitrite, Dissolved | Nitrite, Total | Nitrate, Dissolved | Nitrate, Total |
|---|---|---|---|---|---|---|---|---|---|---|
| | yyyymmdd | | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l |
| SUSQ 340.0 | 19950724 | 1257 | 106 | 114 | < 0.02 | 0.04 | 0.006 | 0.006 | 0.56 | 0.56 |
| SUSQ 340.0 | 19950918 | 1130 | 158 | 158 | < 0.02 | 0.07 | < 0.004 | 0.004 | < 0.04 | 0.08 |
| SUSQ 340.0 | 19951107 | 1130 | 118 | 128 | < 0.02 | < 0.02 | 0.006 | 0.006 | 0.50 | 0.50 |
| SUSQ 340.0 | 19960319 | 1050 | 110 | 120 | < 0.02 | < 0.02 | 0.008 | 0.010 | 0.78 | 0.78 |
| SUSQ 340.0 | 19960515 | 1115 | 86 | 136 | < 0.02 | 0.04 | 0.004 | 0.004 | 0.53 | 0.55 |
| | | | | | | | | | | |
| SUSQ 365.0 | 19950724 | 1510 | 116 | 128 | < 0.02 | 0.03 | 0.008 | 0.008 | 0.47 | 0.47 |
| SUSQ 365.0 | 19950918 | 1235 | 154 | 154 | < 0.02 | 0.03 | 0.006 | 0.006 | 0.36 | 0.36 |
| SUSQ 365.0 | 19951107 | 1240 | 112 | 118 | < 0.02 | < 0.02 | 0.004 | 0.004 | 0.52 | 0.52 |
| SUSQ 365.0 | 19960319 | 1205 | 54 | 68 | < 0.02 | < 0.02 | 0.006 | 0.008 | 0.87 | 0.87 |
| SUSQ 365.0 | 19960515 | 1225 | 92 | 140 | < 0.02 | 0.03 | 0.008 | 0.004 | 0.59 | 0.59 |
| | | | | | | | | | | |
| TIOG 10.8 | 19950726 | 1455 | 158 | 162 | < 0.02 | 0.02 | 0.004 | 0.004 | 0.29 | 0.29 |
| TIOG 10.8 | 19950919 | 1105 | 208 | 208 | < 0.02 | < 0.02 | 0.004 | 0.004 | 0.26 | 0.28 |
| TIOG 10.8 | 19951108 | 1015 | 152 | 166 | 0.07 | 0.07 | 0.010 | 0.018 | 0.66 | 0.66 |
| TIOG 10.8 | 19960320 | 905 | 52 | 124 | 0.10 | 0.13 | 0.010 | 0.016 | 0.76 | 0.76 |
| TIOG 10.8 | 19960516 | 830 | 212 | 212 | < 0.02 | 0.10 | 0.006 | 0.028 | 0.54 | 0.54 |
| | | | | | | | | | | |
| TRUP 4.5 | 19950727 | 1005 | 204 | 210 | < 0.02 | < 0.02 | < 0.004 | < 0.004 | 0.04 | 0.04 |
| TRUP 4.5 | 19950919 | 1425 | 252 | 252 | < 0.02 | < 0.02 | < 0.004 | < 0.004 | < 0.04 | < 0.04 |
| TRUP 4.5 | 19951108 | 1250 | 154 | 172 | < 0.02 | 0.02 | < 0.004 | 0.008 | 0.45 | 0.45 |
| TRUP 4.5 | 19960320 | 1330 | < 2 | 962 | 0.11 | 0.24 | 0.008 | 0.026 | 0.98 | 0.98 |
| TRUP 4.5 | 19960516 | 1205 | 118 | 218 | < 0.02 | 0.07 | 0.004 | 0.024 | 1.01 | 1.01 |
| | | | | | | | | | | |
| WAPP 2.6 | 19950725 | 1240 | 102 | 118 | < 0.02 | < 0.02 | 0.004 | 0.004 | 0.90 | 0.90 |

*Table A1. Water Quality Data for Interstate Streams Crossing the New York-Pennsylvania Border—Continued*

| Station | Date | Time | Kjeldahl Nitrogen, Dissolved | Kjeldahl Nitrogen, Total | Phosphorus, Dissolved | Phosphorus, Total | Ortho Phosphorus, Dissolved | Ortho Phosphorus, Total |
|---|---|---|---|---|---|---|---|---|
| | yyyymmdd | | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l |
| SUSQ 340.0 | 19950724 | 1257 | < 0.20 | 0.35 | 0.027 | 0.04 | < 0.002 | < 0.002 |
| SUSQ 340.0 | 19950918 | 1130 | 0.39 | 0.45 | 0.036 | 0.05 | < 0.002 | 0.029 |
| SUSQ 340.0 | 19951107 | 1130 | 0.20 | 0.33 | 0.029 | 0.03 | 0.004 | 0.008 |
| SUSQ 340.0 | 19960319 | 1050 | < 0.20 | < 0.20 | 0.015 | 0.03 | < 0.002 | 0.006 |
| SUSQ 340.0 | 19960515 | 1115 | < 0.20 | 0.39 | 0.010 | 0.02 | NA | NA |
| | | | | | | | | |
| SUSQ 365.0 | 19950724 | 1510 | 0.22 | 0.22 | 0.045 | 0.06 | 0.017 | 0.016 |
| SUSQ 365.0 | 19950918 | 1235 | < 0.20 | 0.26 | 0.030 | 0.04 | < 0.002 | 0.010 |
| SUSQ 365.0 | 19951107 | 1240 | < 0.20 | 0.35 | 0.027 | 0.03 | 0.002 | 0.009 |
| SUSQ 365.0 | 19960319 | 1205 | < 0.20 | < 0.20 | 0.020 | 0.03 | < 0.002 | 0.007 |
| SUSQ 365.0 | 19960515 | 1225 | < 0.20 | 0.32 | 0.007 | 0.03 | NA | NA |
| | | | | | | | | |
| TIOG 10.8 | 19950726 | 1455 | < 0.20 | 0.25 | 0.019 | 0.04 | < 0.002 | < 0.002 |
| TIOG 10.8 | 19950919 | 1105 | < 0.20 | < 0.20 | 0.022 | 0.04 | < 0.002 | < 0.002 |
| TIOG 10.8 | 19951108 | 1015 | 0.40 | 0.48 | 0.028 | 0.04 | 0.002 | 0.014 |
| TIOG 10.8 | 19960320 | 905 | 0.29 | 0.29 | 0.030 | 0.11 | 0.003 | 0.081 |
| TIOG 10.8 | 19960516 | 830 | 0.20 | 0.43 | 0.009 | 0.08 | NA | NA |
| | | | | | | | | |
| TRUP 4.5 | 19950727 | 1005 | < 0.20 | < 0.20 | 0.022 | 0.03 | < 0.002 | < 0.002 |
| TRUP 4.5 | 19950919 | 1425 | < 0.20 | < 0.20 | 0.019 | 0.02 | < 0.002 | < 0.002 |
| TRUP 4.5 | 19951108 | 1250 | < 0.20 | < 0.20 | 0.019 | 0.02 | < 0.002 | 0.016 |
| TRUP 4.5 | 19960320 | 1330 | 0.45 | 0.80 | 0.035 | 0.55 | 0.015 | 0.378 |
| TRUP 4.5 | 19960516 | 1205 | < 0.20 | 0.37 | 0.007 | 0.04 | NA | NA |
| | | | | | | | | |
| WAPP 2.6 | 19950725 | 1240 | < 0.20 | < 0.20 | 0.023 | 0.04 | < 0.002 | < 0.002 |

*Table A1. Water Quality Data for Interstate Streams Crossing the New York-Pennsylvania Border—Continued*

| Station | Date | Time | Organic Carbon, Total | Calcium | Magnesium | Chloride | Sulfate | Turbidity |
|---|---|---|---|---|---|---|---|---|
| | yyyymmdd | | mg/l | mg/l | mg/l | mg/l | mg/l | NTU |
| SUSQ 340.0 | 19950724 | 1257 | 3.9 | 24.70 | 2.94 | 10 | 20 | 1.7 |
| SUSQ 340.0 | 19950918 | 1130 | 3.3 | 27.90 | 3.74 | 14 | 15 | < 1.0 |
| SUSQ 340.0 | 19951107 | 1130 | 3.1 | 19.00 | 2.62 | 9 | 17 | 3.6 |
| SUSQ 340.0 | 19960319 | 1050 | 3.0 | 17.80 | 2.09 | 10 | 17 | 4.1 |
| SUSQ 340.0 | 19960515 | 1115 | 3.3 | 14.70 | 1.75 | 5 | 29 | < 1.0 |
| | | | | | | | | |
| SUSQ 365.0 | 19950724 | 1510 | 4.0 | 23.60 | 3.12 | 10 | 22 | 2.1 |
| SUSQ 365.0 | 19950918 | 1235 | 2.7 | 30.00 | 3.69 | 14 | 12 | 2.3 |
| SUSQ 365.0 | 19951107 | 1240 | 3.1 | 21.20 | 2.67 | 9 | 29 | 3.2 |
| SUSQ 365.0 | 19960319 | 1205 | 2.9 | 20.10 | 2.19 | 11 | 16 | 3.6 |
| SUSQ 365.0 | 19960515 | 1225 | 3.2 | 16.40 | 1.85 | 6 | 25 | 27.0 |
| | | | | | | | | |
| TIOG 10.8 | 19950726 | 1455 | 2.2 | 24.80 | 6.06 | 11 | 42 | 2.5 |
| TIOG 10.8 | 19950919 | 1105 | 3.0 | 28.30 | 6.76 | 12 | 49 | 1.7 |
| TIOG 10.8 | 19951108 | 1015 | 3.5 | 19.60 | 5.04 | 9 | 40 | 21.0 |
| TIOG 10.8 | 19960320 | 905 | 4.4 | 16.90 | 3.39 | 8 | 28 | 72.0 |
| TIOG 10.8 | 19960516 | 830 | 4.1 | 14.30 | 3.11 | 6 | 41 | 142.8 |
| | | | | | | | | |
| TRUP 4.5 | 19950727 | 1005 | 2.6 | 34.50 | 7.45 | 25 | 19 | 2.8 |
| TRUP 4.5 | 19950919 | 1425 | 2.4 | 42.50 | 8.89 | 33 | 17 | < 1.0 |
| TRUP 4.5 | 19951108 | 1250 | 2.9 | 27.30 | 6.00 | 15 | 26 | 21.0 |
| TRUP 4.5 | 19960320 | 1330 | 5.4 | 16.10 | 6.74 | 12 | 15 | 217.5 |
| TRUP 4.5 | 19960516 | 1205 | 3.2 | 16.20 | 4.16 | 6 | 38 | 127.5 |
| | | | | | | | | |
| WAPP 2.6 | 19950725 | 1240 | 2.1 | 13.80 | 4.19 | 9 | 19 | 1.9 |

*Table A1. Water Quality Data for Interstate Streams Crossing the New York-Pennsylvania Border—Continued*

| Station | Date | Time | Iron, Dissolved | Iron, Total | Manganese, Dissolved | Manganese, Total | Aluminum, Dissolved | Aluminum, Total |
|---|---|---|---|---|---|---|---|---|
| | yyyymmdd | | µg/l | µg/l | µg/l | µg/l | µg/l | µg/l |
| SUSQ 340.0 | 19950724 | 1257 | 67 | 163 | 14 | 44 | < 135 | < 135 |
| SUSQ 340.0 | 19950918 | 1130 | 40 | 144 | 26 | 46 | < 135 | < 135 |
| SUSQ 340.0 | 19951107 | 1130 | 99 | 232 | 22 | 30 | < 135 | < 135 |
| SUSQ 340.0 | 19960319 | 1050 | 67 | 333 | 21 | 23 | < 135 | 157 |
| SUSQ 340.0 | 19960515 | 1115 | 88 | 878 | 13 | 52 | < 135 | 531 |
| | | | | | | | | |
| SUSQ 365.0 | 19950724 | 1510 | 40 | 143 | 15 | 51 | < 135 | < 135 |
| SUSQ 365.0 | 19950918 | 1235 | 61 | 116 | 12 | 34 | < 135 | < 135 |
| SUSQ 365.0 | 19951107 | 1240 | 97 | 233 | 17 | 25 | < 135 | < 135 |
| SUSQ 365.0 | 19960319 | 1205 | 59 | 400 | 16 | 25 | < 135 | 221 |
| SUSQ 365.0 | 19960515 | 1225 | 71 | 822 | 14 | 50 | < 135 | 497 |
| | | | | | | | | |
| TIOG 10.8 | 19950726 | 1455 | 13 | 106 | 32 | 82 | < 135 | < 135 |
| TIOG 10.8 | 19950919 | 1105 | 24 | 120 | < 10 | 73 | < 135 | < 135 |
| TIOG 10.8 | 19951108 | 1015 | 120 | 844 | 425 | 496 | < 135 | 649 |
| TIOG 10.8 | 19960320 | 905 | 131 | 3,760 | 150 | 263 | < 135 | 2,840 |
| TIOG 10.8 | 19960516 | 830 | 144 | 2,580 | 101 | 212 | < 135 | 2,370 |
| | | | | | | | | |
| TRUP 4.5 | 19950727 | 1005 | < 10 | 69 | < 10 | < 10 | < 135 | < 135 |
| TRUP 4.5 | 19950919 | 1425 | 27 | 47 | < 10 | < 10 | < 135 | < 135 |
| TRUP 4.5 | 19951108 | 1250 | 59 | 675 | 16 | 13 | < 135 | 586 |
| TRUP 4.5 | 19960320 | 1330 | 112 | 28,000 | 20 | 352 | < 135 | 15,800 |
| TRUP 4.5 | 19960516 | 1205 | 65 | 4,660 | < 10 | 69 | < 135 | 4,580 |
| | | | | | | | | |
| WAPP 2.6 | 19950725 | 1240 | 115 | 138 | 30 | 64 | < 135 | 427 |

*Table A2. Water Quality Data for Interstate Streams Crossing the Pennsylvania-Maryland Border*

| Station | Date | Time | Discharge | Temper-ature | Specific Conduct-ance | Dissolved Oxygen | Biological Oxygen Demand | pH | Alkalinity | Acidity |
|---|---|---|---|---|---|---|---|---|---|---|
| | yyyymmdd | | cfs | °C | umhos/cm | mg/l | mg/l | | mg/l | mg/l |
| BBDC 4.1 | 19950802 | 1210 | 0.933 | 19.4 | 105 | 8.53 | 0.8 | 6.80 | 18 | 6 |
| | | | | | | | | | | |
| CNWG 4.4 | 19950803 | 1045 | 7.051 | 26.3 | 219 | 6.59 | 1.6 | 7.40 | 42 | 4 |
| CNWG 4.4 | 19951024 | 1320 | 9.73 | 16.3 | 239 | 9.47 | 0.8 | 7.30 | 33 | 4 |
| CNWG 4.4 | 19960417 | 1040 | 13.91 | 7.9 | 194 | 9.72 | 3.3 | 7.12 | 32 | 4 |
| CNWG 4.4 | 19960618 | 1020 | 10.02 | 21.2 | 191 | 7.28 | 6.7 | 7.10 | 34 | 10 |
| | | | | | | | | | | |
| DEER 44.2 | 19950802 | 930 | 8.121 | 22.3 | 171 | 8.26 | 0.9 | 7.45 | 34 | 4 |
| DEER 44.2 | 19951025 | 1145 | 10.72 | 13.4 | 190 | 9.88 | 3.2 | 7.50 | 32 | 4 |
| DEER 44.2 | 19960416 | 945 | 13.99 | 9.6 | 160 | 9.23 | 2.8 | 7.20 | 36 | 6 |
| DEER 44.2 | 19960617 | 930 | 9.08 | 19.4 | 172 | 9.28 | 2.0 | 7.15 | 32 | 4 |
| | | | | | | | | | | |
| EBAU 1.5 | 19950802 | 1100 | 4.873 | 20.5 | 342 | 8.63 | 0.8 | 7.05 | 28 | 6 |
| EBAU 1.5 | 19951025 | 1210 | 6.23 | 13.1 | 458 | 9.74 | 2.5 | 7.05 | 28 | 3 |
| EBAU 1.5 | 19960416 | 1030 | 9.57 | 9.3 | 366 | 9.37 | 2.0 | 7.25 | 28 | 6 |
| EBAU 1.5 | 19960617 | 1035 | 5.37 | 18.3 | 521 | 9.01 | 2.1 | 6.95 | 26 | 6 |
| | | | | | | | | | | |
| FBDC 4.1 | 19950802 | 1330 | 1.271 | 20.7 | 97 | 7.92 | 0.8 | 6.60 | 16 | 8 |
| | | | | | | | | | | |
| LNGA 2.5 | 19950801 | 1005 | 0.458 | 20.7 | 166 | 8.66 | 1.2 | 7.10 | 32 | 6 |
| | | | | | | | | | | |
| OCTO 6.6 | 19950803 | 1150 | 44.5 | 28.0 | 232 | 7.89 | 0.8 | 8.05 | 56 | 2 |
| OCTO 6.6 | 19951024 | 1350 | 123.2 | 16.3 | 248 | 9.25 | 2.0 | 7.85 | 52 | 4 |
| OCTO 6.6 | 19960417 | 1150 | 400 | 9.5 | 212 | 9.39 | 3.7 | 7.20 | 34 | 4 |
| OCTO 6.6 | 19960618 | 915 | 184 | 23.3 | 211 | 7.75 | 2.7 | 7.50 | 40 | 4 |
| | | | | | | | | | | |
| SBCC 20.4 | 19950801 | 1220 | 0.938 | 19.0 | 99 | 8.72 | 0.8 | 7.10 | 32 | 6 |
| | | | | | | | | | | |
| SCTT 3.0 | 19950802 | 1450 | 0.71 | 22.9 | 319 | 6.13 | 2.0 | 7.20 | 74 | 8 |
| SCTT 3.0 | 19951025 | 1305 | 0.83 | 12.3 | 365 | 8.36 | 2.9 | 7.60 | 62 | 7 |
| SCTT 3.0 | 19960416 | 1145 | 1.07 | 10.0 | 229 | 9.16 | 1.6 | 7.20 | 34 | 8 |
| SCTT 3.0 | 19960617 | 1145 | 0.99 | 18.7 | 215 | 8.81 | 2.6 | 7.10 | 42 | 6 |
| | | | | | | | | | | |
| SUSQ 10.0 | 19950803 | 930 | 5,500 | 30.6 | 318 | 5.80 | 1.6 | 7.25 | 56 | 4 |
| SUSQ 10.0 | 19951025 | 1355 | 116,000 | 13.6 | 210 | 9.49 | 3.3 | 7.30 | 27 | 3 |
| SUSQ 10.0 | 19960416 | 1210 | 135,000 | 12.6 | 203 | 9.14 | 0.8 | 7.65 | 40 | 4 |
| SUSQ 10.0 | 19960617 | 1310 | 43,600 | 27.4 | 280 | 6.68 | 2.5 | 7.40 | 54 | 8 |
| | | | | | | | | | | |
| SUSQ 44.5 | 19950803 | 1300 | 6,900 | 30.8 | 379 | 6.28 | 1.0 | 8.20 | 56 | 1 |
| SUSQ 44.5 | 19951024 | 1125 | 118,000 | 12.7 | 187 | 8.90 | 3.5 | 7.30 | 32 | 5 |
| SUSQ 44.5 | 19960416 | 830 | 139,000 | 8.6 | 169 | 9.83 | 1.5 | 7.35 | 36 | 10 |
| SUSQ 44.5 | 19960618 | 1130 | 22,200 | 27.0 | 250 | 7.46 | 5.6 | 8.70 | 56 | 0 |

*Table A2. Water Quality Data for Interstate Streams Crossing the Pennsylvania-Maryland Border—Continued*

| Station | Date | Time | Solids, Dissolved | Solids, Total | Ammonia, Dissolved | Ammonia, Total | Nitrite, Dissolved | Nitrite, Total | Nitrate, Dissolved | Nitrate, Total |
|---|---|---|---|---|---|---|---|---|---|---|
| | yyyymmdd | | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l |
| BBDC 4.1 | 19950802 | 1210 | 104 | 122 | < 0.02 | < 0.02 | 0.004 | 0.004 | 5.15 | 5.15 |
| | | | | | | | | | | |
| CNWG 4.4 | 19950803 | 1045 | 152 | 162 | 0.05 | 0.05 | 0.026 | 0.028 | 5.25 | 5.25 |
| CNWG 4.4 | 19951024 | 1320 | 178 | 180 | 0.04 | 0.04 | 0.020 | 0.020 | 8.21 | 8.21 |
| CNWG 4.4 | 19960417 | 1040 | 98 | 98 | 0.09 | 0.09 | 0.030 | 0.032 | 6.99 | 6.99 |
| CNWG 4.4 | 19960618 | 1020 | 243 | 948 | 0.37 | 0.51 | 0.148 | 0.156 | 5.92 | 6.70 |
| | | | | | | | | | | |
| DEER 44.2 | 19950802 | 930 | 158 | 170 | < 0.02 | < 0.02 | 0.012 | 0.014 | 4.61 | 4.61 |
| DEER 44.2 | 19951025 | 1145 | 144 | 148 | 0.04 | 0.04 | 0.008 | 0.008 | 4.83 | 4.83 |
| DEER 44.2 | 19960416 | 945 | 296 | 324 | 0.07 | 0.06 | 0.020 | 0.038 | 3.41 | 3.52 |
| DEER 44.2 | 19960617 | 930 | 141 | 146 | < 0.02 | < 0.02 | 0.014 | 0.014 | 5.14 | 5.14 |
| | | | | | | | | | | |
| EBAU 1.5 | 19950802 | 1100 | 350 | 354 | < 0.02 | < 0.02 | 0.008 | 0.010 | 5.40 | 5.40 |
| EBAU 1.5 | 19951025 | 1210 | 374 | 378 | 0.09 | 0.09 | 0.044 | 0.046 | 5.51 | 5.51 |
| EBAU 1.5 | 19960416 | 1030 | 166 | 166 | 0.27 | 0.27 | 0.030 | 0.040 | 3.67 | 3.67 |
| EBAU 1.5 | 19960617 | 1035 | 466 | 466 | < 0.02 | < 0.02 | 0.008 | 0.008 | 4.87 | 5.80 |
| | | | | | | | | | | |
| FBDC 4.1 | 19950802 | 1330 | 110 | 118 | < 0.02 | < 0.02 | 0.004 | 0.004 | 4.49 | 4.49 |
| | | | | | | | | | | |
| LNGA 2.5 | 19950801 | 1005 | 146 | 154 | < 0.02 | 0.03 | 0.014 | 0.016 | 5.67 | 5.67 |
| | | | | | | | | | | |
| OCTO 6.6 | 19950803 | 1150 | 124 | 126 | < 0.02 | < 0.02 | 0.010 | 0.010 | 3.16 | 3.16 |
| OCTO 6.6 | 19951024 | 1350 | 194 | 196 | 0.03 | 0.03 | 0.044 | 0.046 | 3.51 | 3.51 |
| OCTO 6.6 | 19960417 | 1150 | 94 | 110 | 0.06 | 0.05 | 0.036 | 0.038 | 6.73 | 6.73 |
| OCTO 6.6 | 19960618 | 915 | 175 | 198 | 0.04 | 0.04 | 0.038 | 0.038 | 6.03 | 6.16 |
| | | | | | | | | | | |
| SBCC 20.4 | 19950801 | 1220 | 70 | 72 | < 0.02 | < 0.02 | 0.004 | 0.004 | 1.54 | 1.58 |
| | | | | | | | | | | |
| SCTT 3.0 | 19950802 | 1450 | 252 | 296 | 0.07 | 0.07 | 0.022 | 0.022 | 2.40 | 2.40 |
| SCTT 3.0 | 19951025 | 1305 | 274 | 276 | 0.17 | 0.17 | 0.036 | 0.036 | 2.73 | 2.73 |
| SCTT 3.0 | 19960416 | 1145 | 284 | 284 | 0.33 | 0.34 | 0.040 | 0.042 | 2.42 | 2.42 |
| SCTT 3.0 | 19960617 | 1145 | 163 | 170 | < 0.02 | 0.03 | 0.020 | 0.028 | 2.07 | 2.08 |
| | | | | | | | | | | |
| SUSQ 10.0 | 19950803 | 930 | 172 | 182 | 0.14 | 0.14 | 0.080 | 0.086 | 1.17 | 1.17 |
| SUSQ 10.0 | 19951025 | 1355 | 202 | 202 | 0.07 | 0.07 | 0.012 | 0.016 | 1.61 | 1.61 |
| SUSQ 10.0 | 19960416 | 1210 | 82 | 82 | 0.03 | 0.03 | 0.014 | 0.016 | 1.33 | 1.33 |
| SUSQ 10.0 | 19960617 | 1310 | 219 | 234 | 0.09 | 0.15 | 0.032 | 0.038 | 1.07 | 1.07 |
| | | | | | | | | | | |
| SUSQ 44.5 | 19950803 | 1300 | 200 | 200 | 0.03 | 0.03 | 0.006 | 0.006 | 0.61 | 0.61 |
| SUSQ 44.5 | 19951024 | 1125 | 126 | 336 | 0.03 | 0.04 | 0.008 | 0.010 | 1.03 | 1.09 |
| SUSQ 44.5 | 19960416 | 830 | < 2 | < 2 | 0.02 | 0.03 | 0.010 | 0.014 | 0.69 | 0.72 |
| SUSQ 44.5 | 19960618 | 1130 | 177 | 192 | < 0.02 | < 0.02 | 0.010 | 0.010 | 0.43 | 0.45 |

*Table A2. Water Quality Data for Interstate Streams Crossing the Pennsylvania-Maryland Border—Continued*

| Station | Date | Time | Kjeldahl Nitrogen, Dissolved | Kjeldahl Nitrogen, Total | Phosphorus, Dissolved | Phosphorus, Total | Ortho Phosphorus, Dissolved | Ortho Phosphorus, Total |
|---|---|---|---|---|---|---|---|---|
| | yyyymmdd | | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l |
| BBDC 4.1 | 19950802 | 1210 | < 0.20 | < 0.20 | 0.018 | 0.03 | < 0.002 | < 0.002 |
| | | | | | | | | |
| CNWG 4.4 | 19950803 | 1045 | 0.20 | 0.35 | 0.061 | 0.80 | NA | NA |
| CNWG 4.4 | 19951024 | 1320 | 0.34 | 0.55 | 0.093 | 0.10 | 0.050 | 0.066 |
| CNWG 4.4 | 19960417 | 1040 | 0.52 | 0.86 | 0.076 | 0.14 | 0.037 | 0.065 |
| CNWG 4.4 | 19960618 | 1020 | 1.76 | 4.10 | 0.212 | 1.19 | 0.100 | 1.000 |
| | | | | | | | | |
| DEER 44.2 | 19950802 | 930 | < 0.20 | < 0.20 | 0.017 | 0.04 | < 0.002 | < 0.002 |
| DEER 44.2 | 19951025 | 1145 | 0.50 | 0.50 | 0.032 | 0.04 | < 0.002 | 0.009 |
| DEER 44.2 | 19960416 | 945 | 0.57 | 1.90 | 0.022 | 0.24 | < 0.002 | 0.024 |
| DEER 44.2 | 19960617 | 930 | < 0.20 | 0.33 | 0.021 | 0.03 | 0.002 | 0.005 |
| | | | | | | | | |
| EBAU 1.5 | 19950802 | 1100 | 0.37 | 0.47 | 0.027 | 0.04 | 0.009 | 0.011 |
| EBAU 1.5 | 19951025 | 1210 | 0.44 | 0.80 | 0.053 | 0.05 | 0.019 | 0.024 |
| EBAU 1.5 | 19960416 | 1030 | 0.54 | 1.18 | 0.014 | 0.09 | < 0.002 | 0.008 |
| EBAU 1.5 | 19960617 | 1035 | 0.52 | 0.78 | 0.019 | 0.03 | 0.005 | 0.005 |
| | | | | | | | | |
| FBDC 4.1 | 19950802 | 1330 | < 0.20 | < 0.20 | 0.017 | 0.02 | < 0.002 | < 0.002 |
| | | | | | | | | |
| LNGA 2.5 | 19950801 | 1005 | < 0.20 | < 0.20 | 0.024 | 0.04 | NA | 0.009 |
| | | | | | | | | |
| OCTO 6.6 | 19950803 | 1150 | < 0.20 | 0.29 | 0.062 | 0.07 | NA | NA |
| OCTO 6.6 | 19951024 | 1350 | 0.60 | 0.93 | 0.184 | 0.21 | 0.140 | 0.166 |
| OCTO 6.6 | 19960417 | 1150 | 0.57 | 0.84 | 0.019 | 0.10 | < 0.002 | 0.008 |
| OCTO 6.6 | 19960618 | 915 | 0.52 | 0.65 | 0.033 | 0.10 | < 0.002 | 0.026 |
| | | | | | | | | |
| SBCC 20.4 | 19950801 | 1220 | < 0.20 | < 0.20 | 0.020 | 0.02 | < 0.002 | < 0.002 |
| | | | | | | | | |
| SCTT 3.0 | 19950802 | 1450 | < 0.20 | 0.47 | 0.102 | 0.19 | 0.088 | 0.100 |
| SCTT 3.0 | 19951025 | 1305 | 0.57 | 0.68 | 0.086 | 0.09 | 0.046 | 0.060 |
| SCTT 3.0 | 19960416 | 1145 | 0.72 | 1.11 | 0.144 | 0.20 | 0.108 | 0.135 |
| SCTT 3.0 | 19960617 | 1145 | 0.29 | 0.29 | 0.059 | 0.08 | 0.039 | 0.044 |
| | | | | | | | | |
| SUSQ 10.0 | 19950803 | 930 | < 0.20 | 0.29 | 0.030 | 0.06 | NA | NA |
| SUSQ 10.0 | 19951025 | 1355 | 0.32 | 0.78 | 0.045 | 0.10 | 0.004 | 0.040 |
| SUSQ 10.0 | 19960416 | 1210 | < 0.20 | 0.20 | 0.006 | 0.03 | < 0.002 | < 0.002 |
| SUSQ 10.0 | 19960617 | 1310 | 0.36 | 0.42 | 0.020 | 0.05 | < 0.002 | 0.013 |
| | | | | | | | | |
| SUSQ 44.5 | 19950803 | 1300 | 0.41 | 0.47 | 0.046 | 0.07 | NA | NA |
| SUSQ 44.5 | 19951024 | 1125 | 0.40 | 1.07 | 0.038 | 0.36 | < 0.002 | 0.050 |
| SUSQ 44.5 | 19960416 | 830 | 0.21 | 0.42 | 0.003 | 0.08 | < 0.002 | < 0.002 |
| SUSQ 44.5 | 19960618 | 1130 | 0.62 | 0.65 | 0.020 | 0.06 | < 0.002 | 0.011 |

*Table A2. Water Quality Data for Interstate Streams Crossing the Pennsylvania-Maryland Border—Continued*

| Station | Date | Time | Organic Carbon, Total | Calcium | Magnesium | Chloride | Sulfate | Turbidity |
|---|---|---|---|---|---|---|---|---|
| | yyyymmdd | | mg/l | mg/l | mg/l | mg/l | mg/l | NTU |
| BBDC 4.1 | 19950802 | 1210 | 1.0 | 8.75 | 5.31 | 12 | < 10 | 1.9 |
| | | | | | | | | |
| CNWG 4.4 | 19950803 | 1045 | 3.0 | 16.40 | 9.34 | 16 | 15 | < 1.0 |
| CNWG 4.4 | 19951024 | 1320 | 3.0 | 16.90 | 9.12 | 15 | 16 | 6.8 |
| CNWG 4.4 | 19960417 | 1040 | 4.2 | 15.80 | 8.50 | 14 | 29 | 11.5 |
| CNWG 4.4 | 19960618 | 1020 | 7.9 | 17.90 | 11.80 | 17 | 30 | 725.0 |
| | | | | | | | | |
| DEER 44.2 | 19950802 | 930 | 1.4 | 16.60 | 6.07 | 18 | 12 | 1.4 |
| DEER 44.2 | 19951025 | 1145 | 2.0 | 17.30 | 6.08 | 17 | 28 | 3.2 |
| DEER 44.2 | 19960416 | 945 | 5.1 | 14.70 | 4.31 | 15 | 18 | 152.5 |
| DEER 44.2 | 19960617 | 930 | 1.0 | 18.40 | 5.32 | 16 | 35 | 4.8 |
| | | | | | | | | |
| EBAU 1.5 | 19950802 | 1100 | 1.4 | 31.80 | 5.98 | 79 | < 10 | 1.5 |
| EBAU 1.5 | 19951025 | 1210 | 1.6 | 37.20 | 5.98 | 94 | 18 | 3.1 |
| EBAU 1.5 | 19960416 | 1030 | 4.1 | 32.80 | 4.32 | 74 | 16 | 25.0 |
| EBAU 1.5 | 19960617 | 1035 | 1.5 | 55.70 | 5.18 | 116 | 60 | < 1.0 |
| | | | | | | | | |
| FBDC 4.1 | 19950802 | 1330 | 1.5 | 7.18 | 3.99 | 9 | < 10 | 2.1 |
| | | | | | | | | |
| LNGA 2.5 | 19950801 | 1005 | 1.8 | 17.30 | 5.56 | 14 | 59 | 4.4 |
| | | | | | | | | |
| OCTO 6.6 | 19950803 | 1150 | 3.6 | 17.10 | 9.19 | 14 | 19 | 1.9 |
| OCTO 6.6 | 19951024 | 1350 | 4.8 | 19.90 | 9.48 | 15 | 21 | 13.9 |
| OCTO 6.6 | 19960417 | 1150 | 3.2 | 19.20 | 8.53 | 13 | 27 | 8.1 |
| OCTO 6.6 | 19960618 | 915 | 2.4 | 23.60 | 9.08 | 14 | 37 | 5.2 |
| | | | | | | | | |
| SBCC 20.4 | 19950801 | 1220 | 1.4 | 12.80 | 3.34 | 6 | 35 | < 1.0 |
| | | | | | | | | |
| SCTT 3.0 | 19950802 | 1450 | 2.3 | 26.30 | 11.30 | 39 | 17 | < 1.0 |
| SCTT 3.0 | 19951025 | 1305 | 3.1 | 28.90 | 14.40 | 37 | 33 | 2.4 |
| SCTT 3.0 | 19960416 | 1145 | 5.6 | 13.90 | 7.79 | 29 | 24 | 11.6 |
| SCTT 3.0 | 19960617 | 1145 | 1.4 | 15.00 | 7.67 | 29 | 50 | 2.3 |
| | | | | | | | | |
| SUSQ 10.0 | 19950803 | 930 | 2.9 | 27.60 | 8.16 | 16 | 80 | < 1.0 |
| SUSQ 10.0 | 19951025 | 1355 | 4.2 | 21.00 | 6.06 | 13 | 33 | 38.0 |
| SUSQ 10.0 | 19960416 | 1210 | 2.2 | 22.00 | 6.08 | 12 | 33 | 6.8 |
| SUSQ 10.0 | 19960617 | 1310 | 2.2 | 38.70 | 7.99 | 17 | 90 | 3.2 |
| | | | | | | | | |
| SUSQ 44.5 | 19950803 | 1300 | 3.4 | 30.60 | 11.30 | 21 | 69 | 7.2 |
| SUSQ 44.5 | 19951024 | 1125 | 5.9 | 18.90 | 5.63 | 11 | 30 | 165.0 |
| SUSQ 44.5 | 19960416 | 830 | 2.9 | 17.00 | 3.50 | 15 | 21 | 28.6 |
| SUSQ 44.5 | 19960618 | 1130 | 3.9 | 31.70 | 12.90 | 19 | 56 | < 1.0 |

*Table A2. Water Quality Data for Interstate Streams Crossing the Pennsylvania-Maryland Border—Continued*

| Station | Date | Time | Iron, Dissolved | Iron, Total | Manganese, Dissolved | Manganese, Total | Aluminum, Dissolved | Aluminum, Total |
|---|---|---|---|---|---|---|---|---|
| | yyyymmdd | | µg/l | µg/l | µg/l | µg/l | µg/l | µg/l |
| BBDC 4.1 | 19950802 | 1210 | 25 | 253 | < 10 | 21 | 135 | 242 |
| | | | | | | | | |
| CNWG 4.4 | 19950803 | 1045 | 97 | 324 | 56 | 76 | < 135 | < 135 |
| CNWG 4.4 | 19951024 | 1320 | 97 | 462 | 52 | 63 | < 135 | 234 |
| CNWG 4.4 | 19960417 | 1040 | 113 | 615 | 46 | 63 | < 135 | 456 |
| CNWG 4.4 | 19960618 | 1020 | 368 | 37,800 | 26 | 808 | < 135 | 25,800 |
| | | | | | | | | |
| DEER 44.2 | 19950802 | 930 | 29 | 188 | < 10 | 18 | < 135 | 184 |
| DEER 44.2 | 19951025 | 1145 | 69 | 179 | 24 | 29 | < 135 | < 135 |
| DEER 44.2 | 19960416 | 945 | 83 | 7,930 | 30 | 240 | < 135 | 6,200 |
| DEER 44.2 | 19960617 | 930 | 31 | 182 | 11 | 18 | < 135 | < 135 |
| | | | | | | | | |
| EBAU 1.5 | 19950802 | 1100 | 222 | 635 | 57 | 66 | < 135 | 190 |
| EBAU 1.5 | 19951025 | 1210 | 102 | 309 | 51 | 57 | < 135 | 156 |
| EBAU 1.5 | 19960416 | 1030 | 93 | 2,500 | 33 | 86 | < 135 | 1,760 |
| EBAU 1.5 | 19960617 | 1035 | 171 | 356 | 62 | 70 | < 135 | < 135 |
| | | | | | | | | |
| FBDC 4.1 | 19950802 | 1330 | 146 | 304 | < 10 | < 10 | < 135 | < 135 |
| | | | | | | | | |
| LNGA 2.5 | 19950801 | 1005 | 61 | 81 | 61 | 59 | < 135 | < 135 |
| | | | | | | | | |
| OCTO 6.6 | 19950803 | 1150 | 70 | 212 | 33 | 35 | < 135 | < 135 |
| OCTO 6.6 | 19951024 | 1350 | 96 | 540 | 36 | 95 | < 135 | 373 |
| OCTO 6.6 | 19960417 | 1150 | 63 | 703 | 44 | 116 | < 135 | 476 |
| OCTO 6.6 | 19960618 | 915 | 20 | 239 | < 10 | 61 | < 135 | < 135 |
| | | | | | | | | |
| SBCC 20.4 | 19950801 | 1220 | 65 | 199 | < 10 | 13 | < 135 | < 135 |
| | | | | | | | | |
| SCTT 3.0 | 19950802 | 1450 | 47 | 407 | 42 | 80 | < 135 | 164 |
| SCTT 3.0 | 19951025 | 1305 | 131 | 406 | 151 | 154 | < 135 | < 135 |
| SCTT 3.0 | 19960416 | 1145 | 166 | 972 | 27 | 53 | < 135 | 692 |
| SCTT 3.0 | 19960617 | 1145 | 45 | 241 | < 10 | 24 | < 135 | < 135 |
| | | | | | | | | |
| SUSQ 10.0 | 19950803 | 930 | 11 | 283 | 13 | 108 | < 135 | 221 |
| SUSQ 10.0 | 19951025 | 1355 | 76 | 1,510 | < 10 | 142 | < 135 | 987 |
| SUSQ 10.0 | 19960416 | 1210 | 98 | 445 | 99 | 142 | < 135 | 294 |
| SUSQ 10.0 | 19960617 | 1310 | 12 | 162 | 12 | 113 | < 135 | < 135 |
| | | | | | | | | |
| SUSQ 44.5 | 19950803 | 1300 | 42 | 344 | 64 | 97 | 35 | 146 |
| SUSQ 44.5 | 19951024 | 1125 | 110 | 9,820 | 28 | 1,521 | 25 | 3,724 |
| SUSQ 44.5 | 19960416 | 830 | 79 | 1,630 | 27 | 145 | 28 | 473 |
| SUSQ 44.5 | 19960618 | 1130 | 84 | 571 | 10 | 109 | 74 | 151 |

# Appendix B
# Macroinvertebrate Data for Interstate Streams Crossing the New York-Pennsylvania and Pennsylvania-Maryland Borders

*Table B1. Macroinvertebrate Data for Interstate Streams Crossing the New York-Pennsylvania Border*

| Order | Family | Genus | SUSQ 365.0 | SNAK 2.3 | SUSQ 340.0 | CHOC 9.1 | APAL 6.9 |
|---|---|---|---|---|---|---|---|
| Coleoptera | Dytiscidae | *Agabus* | | | | | |
| | Elmidae | *Dubiraphia* | | | | | |
| | | *Optioservus* | 10 | 9 | 5 | 7 | 3 |
| | | *Stenelmis* | 17 | 2 | 22 | 6 | 6 |
| | Gyrinidae | *Dineutis* | 1 | | | | |
| | Hydrophilidae | *Berosus* | | | | | |
| | Psephenidae | *Psephenus* | 10 | 11 | 1 | 11 | 17 |
| | | *Ectopria* | | | | | |
| Diptera | Athericidae | *Atherix* | | 11 | | 2 | 4 |
| | Chironomidae | | 10 | 8 | 14 | 11 | 18 |
| | Empididae | *Hemerodromia* | | | | | |
| | Simuliidae | *Simulium* | 3 | | | | |
| | Tabanidae | *Chrysops* | | | | | |
| | Tipulidae | *Antocha* | | 1 | | 1 | |
| | | *Hexatoma* | | | | 1 | 11 |
| | | *Pedicia* | | | | | |
| | | *Tipula* | | | | 1 | 3 |
| Ephemeroptera | Baetidae | *Baetis* | | | 2 | | 1 |
| | | *Centroptilum* | | | 4 | | |
| | | *Heterocloeon* | | | 2 | | |
| | | *Pseudocloeon* | 2 | | | | |
| | Caenidae | *Caenis* | | 1 | 1 | | |
| | Ephemerellidae | *Serratella* | | | | | |
| | Heptagenidae | *Epeorus* | | | | | |
| | | *Heptagenia* | | 1 | | | |
| | | *Leucrocuta* | | | 5 | 2 | 1 |
| | | *Stenacron* | | | | | 1 |
| | | *Stenonema* | 1 | 1 | 5 | 2 | |
| | Leptophlebiidae | *Paraleptophlebia* | | 2 | | | |
| | Isonychiidae | *Isonychia* | 9 | 4 | 4 | 12 | 4 |
| | Polymitarcyidae | *Ephoron* | 7 | | 5 | | |
| | Potamanthidae | *Anthopotamus* | | | 15 | | |
| | Tricorythidae | *Tricorythodes* | | | | | |
| Hemiptera | Gerridae | *Metrobates* | | | | | |
| | Veliidae | *Rhagovelia* | | | | | |
| Megaloptera | Corydalidae | *Corydalus* | 1 | | | | |
| | | *Nigronia* | | 1 | | 3 | 3 |
| | Sialidae | *Sialis* | 1 | | | | |
| Odonata | Aeshnidae | *Boyeria* | | | | | |
| | Coenagrionidae | *Argia* | | | | | |
| | Cordulegastridae | *Cordulegaster* | | | | | |
| | Gomphidae | *Gomphus* | | 3 | | | |
| | | *Ophiogomphus* | | | | 4 | |
| | | *Stylogomphus* | | | | 2 | 2 |
| Plecoptera | Leuctridae | *Leuctra* | | 1 | | 2 | |
| | Peltoperlidae | *Peltoperla* | | | | | |
| | Perlidae | *Acroneuria* | | | | 1 | 6 |
| | | *Neoperla* | | | 4 | | |
| | | *Paragnetina* | 4 | | | | |
| | | *Agnetina* | 9 | 5 | | | 1 |

*Table B1. Macroinvertebrate Data for Interstate Streams Crossing the New York-Pennsylvania Border—Continued*

| Order | Family | Genus | SUSQ 365.0 | SNAK 2.3 | SUSQ 340.0 | CHOC 9.1 | APAL 6.9 |
|---|---|---|---|---|---|---|---|
| Trichoptera | Brachycentridae | *Brachycentrus* | | | | | |
| | Hydropsychidae | *Cheumatopsyche* | | 2 | 1 | 1 | 28 |
| | | *Hydropsyche* | 3 | 3 | | 8 | 19 |
| | | *Macrostemum* | 13 | | 6 | | |
| | | *Ceratopsyche* | 10 | 15 | 1 | 5 | 6 |
| | Hydroptilidae | *Leucotrichia* | | 2 | | | |
| | Limnophilidae | *Neophylax* | | | | | |
| | Philopotamidae | *Chimarra* | 12 | 14 | 1 | 19 | 59 |
| | | *Dolophilodes* | 21 | | | | |
| | Polycentropodidae | *Neureclipsis* | | | | | |
| | | *Nyctiophylax* | | | 1 | | |
| | | *Polycentropus* | | | | | |
| | Rhyacophilidae | *Rhyacophila* | | | | | |
| Amphipoda | Gammaridae | *Gammarus* | 2 | | | | |
| Annelida | Glossiphonidae | *Batrachobdella* | | | | | |
| Decapoda | Cambaridae | *Cambarus* | | 1 | | | |
| | | *Orconectes* | | | | | 2 |
| Gastropoda | Physidae | *Physa* | 3 | 1 | 1 | | |
| Isopoda | Asellidae | *Caecidotea* | | | | | |
| Oligochaeta | Hirudinae | *Helobdella* | | | | | |
| | Naididae | *Nias* | | 2 | | | |
| Pelecypoda | Corbiculidae | *Corbicula* | | | | | |
| | Sphaeriidae | *Pisidium* | | | 2 | | |

*Table B1. Macroinvertebrate Data for Interstate Streams Crossing the New York-Pennsylvania Border—Continued*

| Order | Family | Genus | WAPP 2.6 | CAYT 1.7 | TRUP 4.5 | COWN 2.2 | TIOG 10.8 |
|---|---|---|---|---|---|---|---|
| Coleoptera | Dytiscidae | *Agabus* | | | | | |
| | Elmidae | *Dubiraphia* | | | | | |
| | | *Optioservus* | 6 | 2 | | | |
| | | *Stenelmis* | 1 | 35 | 2 | 1 | 1 |
| | Gyrinidae | *Dineutis* | | | | | 1 |
| | Hydrophilidae | *Berosus* | | | | | |
| | Psephenidae | *Psephenus* | 7 | 3 | 4 | | |
| | | *Ectopria* | | | | | |
| Diptera | Athericidae | *Atherix* | 23 | 2 | 3 | | 3 |
| | Chironomidae | | 16 | 28 | 27 | 41 | 12 |
| | Empididae | *Hemerodromia* | | | 1 | | 3 |
| | Simuliidae | *Simulium* | | | | 21 | 9 |
| | Tabanidae | *Chrysops* | | | | | |
| | Tipulidae | *Antocha* | | | | | |
| | | *Hexatoma* | 3 | 1 | | | |
| | | *Pedicia* | | | | | |
| | | *Tipula* | | 1 | 1 | | |
| Ephemeroptera | Baetidae | *Baetis* | | | | | 1 |
| | | *Centroptilum* | | | | | |
| | | *Heterocloeon* | | | | | |
| | | *Pseudocloeon* | | | | | |
| | Caenidae | *Caenis* | | | | 2 | |
| | Ephemerellidae | *Serratella* | | | | | |
| | Heptagenidae | *Epeorus* | | | | | |
| | | *Heptagenia* | | | | 1 | |
| | | *Leucrocuta* | | | | | |
| | | *Stenacron* | | | 1 | | |
| | | *Stenonema* | 3 | 1 | 7 | | 53 |
| | Leptophlebiidae | *Paraleptophlebia* | | | | | |
| | Isonychiidae | *Isonychia* | 25 | 5 | 3 | | 8 |
| | Polymitarcyidae | *Ephoron* | | 1 | | | |
| | Potamanthidae | *Anthopotamus* | | | | | |
| | Tricorythidae | *Tricorythodes* | | | | | |
| Hemiptera | Gerridae | *Metrobates* | | | | | |
| | Veliidae | *Rhagovelia* | | | | | |
| Megaloptera | Corydalidae | *Corydalus* | | 1 | | | 3 |
| | | *Nigronia* | 3 | | | | |
| | Sialidae | *Sialis* | | 1 | | | |
| Odonata | Aeshnidae | *Boyeria* | | | | | |
| | Coenagrionidae | *Argia* | | | | 2 | |
| | Cordulegastridae | *Cordulegaster* | | | | | |
| | Gomphidae | *Gomphus* | | | | | |
| | | *Ophiogomphus* | | | 1 | | |
| | | *Stylogomphus* | | | | | |
| Plecoptera | Leuctridae | *Leuctra* | | | | | |
| | Peltoperlidae | *Peltoperla* | | | | | |
| | Perlidae | *Acroneuria* | 5 | 2 | | | |
| | | *Neoperla* | | | | | |
| | | *Paragnetina* | 1 | | | | |
| | | *Agnetina* | 3 | 1 | | | |

*Table B1. Macroinvertebrate Data for Interstate Streams Crossing the New York-Pennsylvania Border—Continued*

| Order | Family | Genus | WAPP 2.6 | CAYT 1.7 | TRUP 4.5 | COWN 2.2 | TIOG 10.8 |
|---|---|---|---|---|---|---|---|
| Trichoptera | Brachycentridae | *Brachycentrus* | | | | | |
| | Hydropsychidae | *Cheumatopsyche* | 2 | 5 | 2 | 15 | 8 |
| | | *Hydropsyche* | | 1 | | 4 | |
| | | *Macrostemum* | | | | | 7 |
| | | *Ceratopsyche* | 47 | 11 | 24 | 3 | 35 |
| | Hydroptilidae | *Leucotrichia* | | | | | |
| | Limnophilidae | *Neophylax* | | | | | |
| | Philopotamidae | *Chimarra* | 31 | 1 | | | 9 |
| | | *Dolophilodes* | | | | | |
| | Polycentropodidae | *Neureclipsis* | | | | | 16 |
| | | *Nyctiophylax* | | | | | |
| | | *Polycentropus* | | | | | |
| | Rhyacophilidae | *Rhyacophila* | | | | | |
| Amphipoda | Gammaridae | *Gammarus* | | | | | |
| Annelida | Glossiphonidae | *Batrachobdella* | | | | | |
| Decapoda | Cambaridae | *Cambarus* | | | | | |
| | | *Orconectes* | | | | 1 | |
| Gastropoda | Physidae | *Physa* | | | 3 | | |
| Isopoda | Asellidae | *Caecidotea* | | | | 2 | |
| Oligochaeta | Hirudinae | *Helobdella* | | | | | |
| | Naididae | *Nias* | | 1 | | | |
| Pelecypoda | Corbiculidae | *Corbicula* | | | | | |
| | Sphaeriidae | *Pisidium* | | | | | 2 |

*Table B1. Macroinvertebrate Data for Interstate Streams Crossing the New York-Pennsylvania Border—Continued*

| Order | Family | Genus | SEEL 10.3 | SOUT 2.8 | BNTY 0.9 | CHEM 12.0 | SUSQ 289.1 |
|---|---|---|---|---|---|---|---|
| Coleoptera | Dytiscidae | *Agabus* | | | | | |
| | Elmidae | *Dubiraphia* | | | | 12 | |
| | | *Optioservus* | 11 | 2 | | | |
| | | *Stenelmis* | 1 | 17 | 2 | 4 | 15 |
| | Gyrinidae | *Dineutis* | | | | | |
| | Hydrophilidae | *Berosus* | | | | 8 | |
| | Psephenidae | *Psephenus* | | 8 | 1 | 2 | |
| | | *Ectopria* | | | | | |
| Diptera | Athericidae | *Atherix* | 2 | 22 | 1 | | |
| | Chironomidae | | 93 | 47 | 24 | 27 | 13 |
| | Empididae | *Hemerodromia* | | | | | |
| | Simuliidae | *Simulium* | | | 8 | | |
| | Tabanidae | *Chrysops* | 6 | | | | |
| | Tipulidae | *Antocha* | 1 | | | | |
| | | *Hexatoma* | 2 | | | | |
| | | *Pedicia* | | | | | |
| | | *Tipula* | | | 1 | | |
| Ephemeroptera | Baetidae | *Baetis* | 9 | | 10 | 2 | |
| | | *Centroptilum* | | | | | |
| | | *Heterocloeon* | | | | | |
| | | *Pseudocloeon* | | | 5 | | |
| | Caenidae | *Caenis* | | | | 7 | |
| | Ephemerellidae | *Serratella* | | | | | 4 |
| | Heptagenidae | *Epeorus* | | | 6 | | |
| | | *Heptagenia* | | | | | |
| | | *Leucrocuta* | 4 | | | | |
| | | *Stenacron* | | | 1 | | |
| | | *Stenonema* | 2 | | 4 | 6 | 1 |
| | Leptophlebiidae | *Paraleptophlebia* | | | | | |
| | Isonychiidae | *Isonychia* | 3 | | 5 | | 21 |
| | Polymitarcyidae | *Ephoron* | | | | | 2 |
| | Potamanthidae | *Anthopotamus* | | | | 7 | 3 |
| | Tricorythidae | *Tricorythodes* | 6 | | | 3 | |
| Hemiptera | Gerridae | *Metrobates* | | | | | |
| | Veliidae | *Rhagovelia* | | | | 1 | |
| Megaloptera | Corydalidae | *Corydalus* | | | | | 1 |
| | | *Nigronia* | | 2 | | | |
| | Sialidae | *Sialis* | | | | 2 | |
| Odonata | Aeshnidae | *Boyeria* | | | | | |
| | Coenagrionidae | *Argia* | | | | 2 | |
| | Cordulegastridae | *Cordulegaster* | | | | | |
| | Gomphidae | *Gomphus* | | 2 | | | |
| | | *Ophiogomphus* | | | | | |
| | | *Stylogomphus* | | | | | |
| Plecoptera | Leuctridae | *Leuctra* | 1 | 2 | | | |
| | Peltoperlidae | *Peltoperla* | | | | | |
| | Perlidae | *Acroneuria* | | 2 | | | |
| | | *Neoperla* | | | | | |
| | | *Paragnetina* | | | | | |
| | | *Agnetina* | | | | | 5 |

*Table B1. Macroinvertebrate Data for Interstate Streams Crossing the New York-Pennsylvania Border—Continued*

| Order | Family | Genus | SEEL 10.3 | SOUT 2.8 | BNTY 0.9 | CHEM 12.0 | SUSQ 289.1 |
|---|---|---|---|---|---|---|---|
| Trichoptera | Brachycentridae | *Brachycentrus* | | | | | |
| | Hydropsychidae | *Cheumatopsyche* | 2 | 18 | 3 | 4 | 7 |
| | | *Hydropsyche* | | 14 | 1 | | 10 |
| | | *Macrostemum* | | | | | 35 |
| | | *Ceratopsyche* | 27 | | 9 | 1 | 10 |
| | Hydroptilidae | *Leucotrichia* | | | | | |
| | Limnophilidae | *Neophylax* | | | | | |
| | Philopotamidae | *Chimarra* | | 31 | 2 | | 29 |
| | | *Dolophilodes* | | | | | |
| | Polycentropodidae | *Neureclipsis* | | | | | |
| | | *Nyctiophylax* | | | | | |
| | | *Polycentropus* | | | | | |
| | Rhyacophilidae | *Rhyacophila* | | | | | |
| Amphipoda | Gammaridae | *Gammarus* | | | | | |
| Annelida | Glossiphonidae | *Batrachobdella* | | | | 2 | |
| Decapoda | Cambaridae | *Cambarus* | | | | | |
| | | *Orconectes* | | 2 | | | 1 |
| Gastropoda | Physidae | *Physa* | | | | | 4 |
| Isopoda | Asellidae | *Caecidotea* | | | | | |
| Oligochaeta | Hirudinae | *Helobdella* | | | | | 2 |
| | Naididae | *Nias* | | | | | |
| Pelecypoda | Corbiculidae | *Corbicula* | | | | | |
| | Sphaeriidae | *Pisidium* | | | | 3 | 14 |

*Table B2. Macroinvertebrate Data for Interstate Streams Crossing the Pennsylvania-Maryland Border*

| Order | Family | Genus | SBCC 20.4 | LNGA 2.5 | SUSQ 44.5 | SCTT 3.0 | CNWG 4.4 |
|---|---|---|---|---|---|---|---|
| Coleoptera | Dytiscidae | *Agabus* | | | | 1 | |
| | Elmidae | *Dubiraphia* | | | | | |
| | | *Optioservus* | 39 | 29 | | | |
| | | *Stenelmis* | 6 | 15 | 6 | | 31 |
| | Gyrinidae | *Dineutis* | | | | | |
| | Hydrophilidae | *Berosus* | | | | | |
| | Psephenidae | *Psephenus* | | 4 | 1 | | 2 |
| | | *Ectopria* | 4 | | | | |
| Diptera | Athericidae | *Atherix* | | 11 | | | 14 |
| | Chironomidae | | 19 | 18 | 15 | 59 | 27 |
| | Empididae | *Hemerodromia* | | 1 | | 3 | |
| | Simuliidae | *Simulium* | | 1 | | 15 | |
| | Tabanidae | *Chrysops* | | 1 | | | |
| | Tipulidae | *Antocha* | | 4 | | | 1 |
| | | *Hexatoma* | 2 | | | 1 | |
| | | *Pedicia* | 12 | | | | |
| | | *Tipula* | 2 | | | 2 | |
| Ephemeroptera | Baetidae | *Baetis* | 4 | 12 | 11 | 2 | 6 |
| | | *Centroptilum* | | | 2 | | |
| | | *Heterocloeon* | | | | | |
| | | *Pseudocloeon* | | | | | |
| | Caenidae | *Caenis* | | | 1 | | |
| | Ephemerellidae | *Serratella* | 1 | 2 | | | 1 |
| | Heptagenidae | *Epeorus* | | | | | |
| | | *Heptagenia* | | | | | |
| | | *Leucrocuta* | | | | | 11 |
| | | *Stenacron* | | | 7 | | 2 |
| | | *Stenonema* | 2 | 6 | 18 | | 27 |
| | Leptophlebiidae | *Paraleptophlebia* | | | | | |
| | Isonychiidae | *Isonychia* | 3 | | 8 | | 12 |
| | Polymitarcyidae | *Ephoron* | | | | | |
| | Potamanthidae | *Anthopotamus* | | | | | |
| | Tricorythidae | *Tricorythodes* | | | 1 | | |
| Hemiptera | Gerridae | *Metrobates* | | | | | |
| | Veliidae | *Rhagovelia* | | | | | |
| Megaloptera | Corydalidae | *Corydalus* | | | 3 | | 1 |
| | | *Nigronia* | 2 | | | | 2 |
| | Sialidae | *Sialis* | | | 2 | | 1 |
| Odonata | Aeshnidae | *Boyeria* | | | | | |
| | Coenagrionidae | *Argia* | | | 10 | | |
| | Cordulegastridae | *Cordulegaster* | 1 | | | | |
| | Gomphidae | *Gomphus* | 3 | | | | 1 |
| | | *Ophiogomphus* | | | | | |
| | | *Stylogomphus* | 4 | | | | |
| Plecoptera | Leuctridae | *Leuctra* | 29 | | | | 2 |
| | Peltoperlidae | *Peltoperla* | 3 | | | | |
| | Perlidae | *Acroneuria* | 4 | 1 | | | |
| | | *Neoperla* | | | | | |
| | | *Paragnetina* | | | | | |
| | | *Agnetina* | | | | | |

*Table B2. Macroinvertebrate Data for Interstate Streams Crossing the Pennsylvania-Maryland Border—Continued*

| Order | Family | Genus | SBCC 20.4 | LNGA 2.5 | SUSQ 44.5 | SCTT 3.0 | CNWG 4.4 |
|---|---|---|---|---|---|---|---|
| Trichoptera | Brachycentridae | *Brachycentrus* | | | | | |
| | Hydropsychidae | *Cheumatopsyche* | 2 | 12 | 2 | | 8 |
| | | *Hydropsyche* | 3 | 18 | 1 | 4 | 4 |
| | | *Macrostemum* | | | 18 | | |
| | | *Ceratopsyche* | 9 | 3 | | 1 | 5 |
| | Hydroptilidae | *Leucotrichia* | | | | | |
| | Limnophilidae | *Neophylax* | | | | | |
| | Philopotamidae | *Chimarra* | | 3 | 2 | | |
| | | *Dolophilodes* | 9 | | | | |
| | Polycentropodidae | *Neureclipsis* | | | | | |
| | | *Nyctiophylax* | | | | | |
| | | *Polycentropus* | 2 | | | | |
| | Rhyacophilidae | *Rhyacophila* | | | | | |
| Amphipoda | Gammaridae | *Gammarus* | | | 4 | | |
| Annelida | Glossiphonidae | *Batrachobdella* | | | | | |
| Decapoda | Cambaridae | *Cambarus* | | 2 | 1 | | |
| | | *Orconectes* | 1 | | | | |
| Gastropoda | Physidae | *Physa* | | | | 9 | |
| Isopoda | Asellidae | *Caecidotea* | | | | | |
| Oligochaeta | Hirudinae | *Helobdella* | | | | | |
| | Naididae | *Nias* | | | | | |
| Pelecypoda | Corbiculidae | *Corbicula* | | | | | |
| | Sphaeriidae | *Pisidium* | | | 3 | | |

*Table B2. Macroinvertebrate Data for Interstate Streams Crossing the Pennsylvania-Maryland Border—Continued*

| Order | Family | Genus | OCTO 6.6 | EBAU 1.5 | DEER 44.5 | BBDC 4.1 | FBDC 4.1 |
|---|---|---|---|---|---|---|---|
| Coleoptera | Dytiscidae | *Agabus* | | | | | |
| | Elmidae | *Dubiraphia* | | | | | |
| | | *Optioservus* | 1 | 30 | 6 | 18 | 11 |
| | | *Stenelmis* | 6 | | 5 | 15 | 17 |
| | Gyrinidae | *Dineutis* | | | | | |
| | Hydrophilidae | *Berosus* | | | | | |
| | Psephenidae | *Psephenus* | 10 | 1 | 1 | | |
| | | *Ectopria* | | | | 1 | 1 |
| Diptera | Athericidae | *Atherix* | | | 1 | | |
| | Chironomidae | | 3 | 39 | 24 | 10 | 14 |
| | Empididae | *Hemerodromia* | | | | 1 | 1 |
| | Simuliidae | *Simulium* | | | 6 | | 1 |
| | Tabanidae | *Chrysops* | | | | | |
| | Tipulidae | *Antocha* | 1 | 7 | 5 | 1 | 3 |
| | | *Hexatoma* | | | | | |
| | | *Pedicia* | | | | | |
| | | *Tipula* | | 1 | | 1 | |
| Ephemeroptera | Baetidae | *Baetis* | 16 | 2 | 22 | 3 | 9 |
| | | *Centroptilum* | | | | | |
| | | *Heterocloeon* | | | | | |
| | | *Pseudocloeon* | 12 | | 2 | | |
| | Caenidae | *Caenis* | | | | | |
| | Ephemerellidae | *Serratella* | 7 | | | | 2 |
| | Heptagenidae | *Epeorus* | | | | 3 | |
| | | *Heptagenia* | | | | | |
| | | *Leucrocuta* | 3 | | | 2 | |
| | | *Stenacron* | | | | | |
| | | *Stenonema* | 9 | 1 | 14 | | 5 |
| | Leptophlebiidae | *Paraleptophlebia* | | | | | |
| | Isonychiidae | *Isonychia* | | 4 | 26 | 5 | |
| | Polymitarcyidae | *Ephoron* | | | | | |
| | Potamanthidae | *Anthopotamus* | | | | | |
| | Tricorythidae | *Tricorythodes* | | | | | |
| Hemiptera | Gerridae | *Metrobates* | 2 | | | | |
| | Veliidae | *Rhagovelia* | | | | | |
| Megaloptera | Corydalidae | *Corydalus* | 1 | | 4 | | |
| | | *Nigronia* | 1 | 1 | | 5 | 2 |
| | Sialidae | *Sialis* | | | | 1 | |
| Odonata | Aeshnidae | *Boyeria* | | | | 1 | |
| | Coenagrionidae | *Argia* | | | | | |
| | Cordulegastridae | *Cordulegaster* | | | | | |
| | Gomphidae | *Gomphus* | | | | | |
| | | *Ophiogomphus* | | | | | |
| | | *Stylogomphus* | | | | | |
| Plecoptera | Leuctridae | *Leuctra* | | | | 21 | 3 |
| | Peltoperlidae | *Peltoperla* | | | | | |
| | Perlidae | *Acroneuria* | | 1 | 1 | 1 | |
| | | *Neoperla* | | | | | |
| | | *Paragnetina* | | | | | |
| | | *Agnetina* | | | | 11 | |

*Table B2. Macroinvertebrate Data for Interstate Streams Crossing the Pennsylvania-Maryland Border—Continued*

| Order | Family | Genus | OCTO 6.6 | EBAU 1.5 | DEER 44.5 | BBDC 4.1 | FBDC 4.1 |
|---|---|---|---|---|---|---|---|
| Trichoptera | Brachycentridae | *Brachycentrus* | 26 | | | | |
| | Hydropsychidae | *Cheumatopsyche* | 4 | 3 | 33 | 2 | 5 |
| | | *Hydropsyche* | | 21 | 17 | 2 | 13 |
| | | *Macrostemum* | 20 | | | | |
| | | *Ceratopsyche* | 25 | 36 | 10 | 18 | 21 |
| | Hydroptilidae | *Leucotrichia* | | | | | |
| | Limnophilidae | *Neophylax* | 1 | 1 | | | |
| | Philopotamidae | *Chimarra* | 38 | | | | 1 |
| | | *Dolophilodes* | | | | 34 | |
| | Polycentropodidae | *Neureclipsis* | | | | | |
| | | *Nyctiophylax* | | | | | |
| | | *Polycentropus* | | | | | |
| | Rhyacophilidae | *Rhyacophila* | | | | 7 | |
| Amphipoda | Gammaridae | *Gammarus* | 1 | | | | |
| Annelida | Glossiphonidae | *Batrachobdella* | | 1 | | | |
| Decapoda | Cambaridae | *Cambarus* | | | | | |
| | | *Orconectes* | | | | | |
| Gastropoda | Physidae | *Physa* | | | | | |
| Isopoda | Asellidae | *Caecidotea* | | | | | |
| Oligochaeta | Hirudinae | *Helobdella* | | | | | |
| | Naididae | *Nias* | | | | | |
| Pelecypoda | Corbiculidae | *Corbicula* | 6 | | | | |
| | Sphaeriidae | *Pisidium* | | | | | |